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THE BUILDER

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Somerville, D. G. & Co., Ltd.

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McNeill, F. & Co. Ltd.

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THE BUILDER

A RECORD OF ARCHITECTURE AND CONSTRUCTION.

VOL. CXIII.—No. 3902. NOVEMBER 16, 1917.

BUILDING SUPERVISION.

BEFORE the era of building contracts, the supervision of building operations was a department of the architect's work usually delegated to juniors, whose chief concern was to see that the details were faithfully carried out. Now, however, it comprises the additional duty of seeing that the client gets what is included in his contract, and this is a business involving considerable judgment and tact, and a combination of practical knowledge with methodical routine which can only be acquired by a double apprenticeship in the shops and in the office. We suffer to-day from a lack of men combining these qualifications, and often find our clerk of works to be either a good artificer and a bad clerk, or else a good clerk but not a practical artificer. The average architect would usually choose the former, but he does so at the risk of much confusion and uncertainty in the settlement of accounts and in dealing with sub-contractors, and in dealing with the multitudinous points arising on every contract in connection with its proper interpretation, and the effects of by-laws, regulations, &c., and such matters as party walls, ancient lights, shoring, pulling-down, reports, tests, delays, deliveries, breakages, and records. The profession, undoubtedly, owes a great deal to those rare men who, by their skill with the workmen, their wide general knowledge and experience, and their unrestricted devotion to their employers, have successfully carried through so many fine buildings; but the fact remains that the demand for such men greatly exceeds the supply.

The reasons for this are various. The first is that the remuneration offered is usually insufficient to attract men of ability and experience, and it frequently happens that leading artisans are better paid than the clerk of works. This is not as it should be, especially when the great responsibility of the latter is considered, and also the fact that his position requires much judgment and entails great responsibilities. The fundamental difficulty is that there is no standard qualification for men so employed. The result is that inferior men set the standard, and in order to get employment, they take lower rates than fully qualified men would consider adequate. The Clerks of Works Association used to hold examinations, but the standard was not a high one, nor was the certificate sufficiently known to be accepted as a diploma by architects. Considering how important it is to architects that they should be able to get reliable and capable lieutenants on their buildings, we think the R.I.B.A. might well take up the question and examine men periodically and grant certificates. Such a course would, undoubtedly, attract men of attainments and character, by the certainty that such a diploma would be a clear recommendation to all the members of the Institute.

A word on the subject of honesty. While the bulk of those employed are men of undoubted integrity, one cannot forget that there have been some flagrant instances of bad faith. We believe we are about to enter a period when there will be high wages, high prices, high pressure and keener competition, and those are the conditions which tend to produce irregularities—at any rate, among the men whose standards are not of the highest—and it is only prudent for architects to remove every possibility of abuse by their agents of the trust reposed in them. We venture to think that a system of bonuses at the end of each contract—conditional upon its satisfactory completion and entirely in the architect's discretion—would go far to remove the temptations in the way and to stimulate the clerk of works to exert himself to his utmost in the employer's interest. Only those concerned can know the tumult of problems which has to be faced with every building worth talking about before it can be finally handed over. And what do its producers get for all their pains? The builder gets his profits; the architect, his praise and emoluments; and the foreman, perhaps a commission, while the clerk of works only gets his salary and, perhaps, a letter of recommendation. He may have the secret satisfaction of knowing he has done his duty, but most of us have that; and it is only human that the clerk of works, if he has really been instrumental in producing a fine piece of work in spite of conditions which every architect knows to be adverse, to say the least of them, should have a substantial reward at the end of it. We believe it is the practice already with some architects to advise the client at the end of a contract, when it has been deserved, to make the clerk of works a present.

Many clerks of works have too little to do—others have too much. The first get demoralised and the others get reduced to a desperate condition in which they finally lose interest in their job. Both conditions are bad, and a wise architect will prevent their occurrence. If the building is small or has little variety or detail, he will, if possible, give his clerk of works another to carry out simultaneously. It is quite pathetic to see a man aimlessly wandering about a building with insufficient occupation; and, therefore, it is good that his duties should be sufficient to absorb his energies—otherwise the result may be a foregone conclusion. On the other hand, he may, by having imposed upon him too many reports and details—drain plans, roof plans, schedules, &c.—be overworked. This often happens when he is a public official and has to prepare weekly financial statements involving much measurement and calculation at the expense of his legitimate work. Much discussion has arisen lately as to whether the measurement of variations is properly part of his regular work. The conclusion is, we believe, that it can only be so regarded if he is a qualified surveyor. Even then, it is difficult to see how he could do this without access to the surveyor's original documents; but, in any case, he should not, in our opinion, be asked to do such work unless he is clearly insufficiently occupied with his primary duties. Difficulties sometimes arise through the clerk of works exceeding his authority by giving orders entailing extras. Most contracts provide against this, and with proper consultations with his architect before such orders are given the question need not arise.

The career of a clerk of works is one capable of great power for good. The influence of the personality of a man with a real enthusiasm for honest work and a thorough knowledge of the best English traditions is very great and permeates the whole job. In this lies one of the best means available for the future security of good workmanship; and for that reason alone it must surely be a sound measure for architects to train a body of men in the method of their work who can give expression to their ideals. By so doing, also, they would be rendering most valuable service to the community, by raising the general standard of workmanship and leading the crafts back to the sound methods and fine traditions of former days. It is, unfortunately, a breach of etiquette for the clerk of works to have intercourse with the men, but we think the main objection is against addressing complaints to them, and that encouragement and advice could never be gainsaid, provided it is given with tact and appreciation. On the contrary, it should go far to produce that spirit of mutual helpfulness which is one of the first conditions necessary to good work.

NOTES.

Building By-laws.

AT a time when public attention is being drawn to building by-laws, the recent decision of a Judge of the High Court in the case Governors of Repton School *v.* Repton Rural District Council (*The Times*, Nov. 8) is of considerable interest. The governors of the school were making certain alterations in the school buildings, including a projection to the front of one of the houses, three stories high, with a room on each floor. In 1902 the Rural District Council had adopted a by-law, one of the Local Government Board's model by-laws issued in 1877, and this by-law provides that every person erecting a new domestic building shall provide an open space in the rear of such building exclusively belonging to such building, and of an aggregate extent of not less than 150 square feet. The Public Health Act Amendment Act, 1907, was in force in the district, and by section 23 of that Act this structure would be a "new building," and in all probability it was also a "new domestic building" under one of the by-laws, but this latter point was not definitely decided by the Court. In these circumstances the Council refused to approve the plans, on the ground that they did not comply with the by-law as to air space, and as the building was continued, they served a notice on the school authorities calling upon them to show cause why the new building should not be pulled down. The school authorities applied for an injunction to restrain the Council from pulling down or interfering with the building. This being a projection from an existing building, it was impossible to provide the open space at the back of the new building, and it was contended that since the definition a "new building" had been extended by the Public Health Act Amendment Act, 1907, the application of the by-law had become unreasonable and impossible. The Court accepted this contention, holding the by-law since the passing of the Act of 1907 to have become unworkable, and the injunction was granted. The case raises many interesting questions in connexion with by-laws, and we shall consider it at greater length in our Legal Section, setting out the by-law in full.

War Allowances to Employees of Local Authorities.

IN our issue for May 4 under this heading we drew attention to the case Davies *v.* Rhondda Urban District Council, and we characterised the decision of the Court as unfortunate in its results, as it concerned the rights of those persons who, in the earlier stages of the War, had enlisted relying upon an undertaking of an employer that certain allowances would be made to them if they placed their services at the disposal of the country. We therefore think we should draw the attention of our readers to the fact that this decision has now been reversed by the Court of Appeal (*Weekly Notes*, Nov. 10), and the hardship involved by the original decision has been removed. The defendants in the action, being a public body dispensing public funds, were compelled to act under judicial sanction, and it will be remembered that the case involved some legal questions of complexity. Very shortly stated it amounted to this, that on September 15, 1914, the Council had passed a resolution that certain allowances would be made to any employee who joined the forces, and the plaintiff had enlisted on the faith of this. Subsequently, on November 15, 1915, the resolution originally passed was annulled, and one less favourable to the employee substituted. As such resolutions on the part of public authorities might well be *ultra vires* the Local Government (Emergency Provisions) Act, 1916, was passed to regularise them, and the question raised in this case was whether the plaintiff had any legal claim seeing that the resolution under which the plaintiff had enlisted had been annulled and another substituted in its place before it was given legal force by the enabling Act in 1916. Those who hastened to help their country as volunteers in the early stages of the war under an assurance from their employers that their pay should not suffer will be glad to learn that the Court of Appeal has held that the original contract made with them is that confirmed and made regular by the subsequent Act of Parliament.

Changes in Building.

WE agree with the architect who gave an "interview" to a *Daily Graphic* reporter that air raids will have no effect on future construction, and we agree in part with him as to the changes which are likely to take place in the future, but not always as to the causes alleged by him. This architect holds that there will be fewer silly affectations in the building of suburban districts, because people have been brought face to face with the realities of war. We should rather put it that there may be fewer "silly affectations" because the public will be more wishful to save the expense of such flights of fancy. He also believes that the public will spend more freely in socialistic and co-operative schemes than the "meanness of the British public" before the war permitted. We doubt whether the British public were ever "mean" in the sense meant, but we should have said that they spent what they regarded as being necessary in bricks and mortar, and usually spent in other directions for pleasure. If they build more it will be because they think it necessary rather than because they are more generous. There will, as time goes on, be an increasing disposition to build fireproof buildings, a tendency which has long been in evidence, and which becomes increasingly so with every improvement in systems of construction, and this tendency will necessarily be accentuated by the shortage of timber, a shortage which was in operation even before the war.

Venice.

ALL lovers of history and art will hope that Venice may not fall within the zone of military operations, for if it does, there is no reason to believe that it will not share the fate of Reims, Soissons and Arras, and it is probable that it would suffer from the effects of bombardment to an even greater extent than the French cities in the war zone on account of the nature of the foundations on which its buildings are erected. But it would be impossible for the military command to order its evacuation if the retention of the city is necessary for military purposes, which is quite likely to be the case. Cividale has already suffered as Italian towns have often suffered in the hands of the invader, and as Rome itself suffered at the hands of the Emperor Charles V, when the Spaniards sacked it. The slightness and delicacy of most of the Venetian work of past centuries will render it an easy victim to the ravages of war. We believe the Italian Government have taken exceptional precautions to guard historic buildings from the damages caused by bombs, but such precautions are a poor protection against a modern bombardment and it can only be hoped that the invaders will be met and defeated before they can approach Venice, but the rapid progress of the invading armies does not seem to render this contingency probable.

Ventilation.

MR. A. S. BARKER, B.A., B.Sc., Whitworth scholar, read an exceptionally interesting paper on ventilation before the Society of Architects on Thursday, in which he explained the revolution which has taken place in the theories previously held. As the conclusions arrived at, though vaguely realised by many, are not sufficiently known, we shall give full extracts from the paper in our next issue as the conclusions arrived at may materially affect future buildings. In brief, it has been proved that the purity of the atmosphere in buildings is of secondary importance compared with its circulation, humidity and heat, facts which have been as yet only dimly realised by architects. People can breathe what is described as "vitiated air" without ill effect as long as such air is kept in motion, and we may gather that the importance of "through ventilation" does not depend on the admission of "fresh" air so much as the fact that the air is in motion. Air apparently can be used again and again if kept in motion in much the same way that the water in a swimming bath may be used again and again for months, but with this difference, that the water so used requires scientific cleansing, which is not the case with the air in a room during a certain period of time, and it may be possible to substitute for natural through ventilation mechanical means which can in certain cases be more readily and easily applied.

Priority of Claim in Building.

WE are told that the Government, acting through committees appointed by the Local Government Board and the Ministry of Reconstruction, will ascertain the probable demand for materials, not only for housing, but for all purposes (including the alteration, repair and extension of workshops and factories now devoted to the output of munitions), and the extent of available supplies, and the committee will then report how far those supplies can be increased in time to secure sufficient quantities for a prompt commencement of building operations on the cessation of hostilities, and on what principles the priority of competing claims shall be settled. To imagine that any committee can perform these little duties adequately is, to our mind, absurd, considering that none of the industrial conditions at the end of the war can be yet even vaguely stated, and that it would be beyond the wit of man to decide fairly the question of relative priority. It is more vitally important that the liberty and rights of private individuals, which have been penalised and done away with during the war, should be restored to them without delay, even if the execution of some State or municipally aided scheme should be delayed for a time, for on the one depend, and always have depended, the trade and prosperity of the country, while the other is an incursion into the region of the unknown, paid for by the results of private enterprise. Why should we be so willing to assume that because we have had a great war, which has certainly not arisen because of our failure as private citizens, the Governments which have shown a lack of foresight in the conduct of public services should be allowed an additional field for their efforts in the direction of controlling and organising industries which they have not concerned themselves with in the past? We believe that this is a somewhat difficult question to answer.

CAPITAL, LABOUR, AND TRADE.

WE are living in exceptional times, and are told we should adopt new methods by which, when peace comes, we may avoid future internal strife. Countless books have been written, and speeches made, in which proposals to bring peace on earth and goodwill among men are advocated. But in many cases it seems a prevalent habit to gloss over essential points of difference in an effort to bring about concord, which appears to be a fundamental mistake, because if we hesitate to pull up the nettles all the effects of careful husbandry may be lost. The nettles we refer to are two—the fundamental want of a universal recognition that the limitation of output on the part of the workers will render all improvement impossible; and the other, indecision on the vexed question of protective tariffs for industries. If the workers of the country will decide to abolish the limitation of output, it becomes possible to concede many of the demands which labour puts forward; if they will not, it becomes futile to discuss other and subordinate questions, and we must face a continuance of labour unrest. And so it is vitally important for Labour finally to decide whether it is to its advantage to put a ring fence of reasonable height round our industries, in the shape of a tariff which will force the consumer to depend mainly on British-produced goods, or whether they consider that free imports of manufactured goods tend to their advantage.

We are frequently confronted with figures showing the relative wages and output of contrasted industries in England and the United States, but we are less frequently reminded that the amount of internal trade might be lessened were it not for the fact that European manufactured goods are practically excluded by a tariff, and that in most cases there are two prices: that within the United States, and that for selling abroad; and that asked for exported goods, which is frequently much lower. We do not wish to express a view as to which of the two systems is right, but it is very important in drawing up our future plans to come to a definite settlement on the matter.

Labour has been inclined to look on a tariff as a means of favouring the employer, but whether tariffs are right in principle or otherwise it is easy to demonstrate that without them the limitation of output is absolutely suicidal to the workers' interest, since the cost of manufactured articles will be very largely regulated by that of competing foreign articles of the same kind which are produced elsewhere. In the same way State and municipal aid given towards housing the worker at uneconomic rents acts as a bonus to those employers whose workpeople are so housed, with the result that wages find a proportionately lower level. We mention these two examples, since they show fallacious reasoning on the part of Labour.

The Whitley Report now issued is excellent if it is to be acted upon, but, as we have stated, no real progress can be made if the old machinery of trade-unionism is to be re-erected intact after the war and if the two fundamental questions we have stated are not boldly grappled with and settled. Labour has done much during the war, but it has also received much, and if it has consented to the temporary abolition of shibboleths it has received an immediate *quantum meruit* for the concession. Capital, except in a few industries, has received no corresponding benefits, while the war has meant enormous hardship to a very large commercial and professional class. Expressions such as "Labour has come into its own" and "Labour must be the dominant factor" have, therefore, no meaning, or, rather, little meaning, unless Labour realises the impossibility of production except upon a commercial basis. This being conceded, such a book as "Terms of Industrial Peace,"* by Mr. Alexander Ramsay, contains much useful matter. The statement that—

> There is, among the employing class, a section who look upon attempts to encourage methods of mediation as a sign of weakness and a mistaken policy. They point out, and reasonably, that the general effect of Governmental interference in trades disputes during recent years has been largely inimical to the interests of employers, and it has now come to be realised as largely true that the arbitrator's method of settling differences is to give the men at least a portion of what they demand—

is certainly justified up to the hilt. But we go further than the author when he says—

> But it is necessary to point out that unless Labour shows a disposition, not at present in evidence, to increase effort, to assist heartily in the development of time-saving appliances, and generally to welcome as a beneficent necessity all expedients for the realisation of cheap production, any improvement in the economic state of Labour can only be won in the form of an uncompensated addition to the working expenses of the employer, adding nothing to the wealth of the nation or the world.

For we should at once say that the maintenance of such an attitude will bring about the downfall of our commercial position, and the first and greatest sufferer from this will be Labour itself.

The writer is probably quite justified in his assertion that a general federation of trade unions will be brought about in the near future, adding to the political strength of Labour; but if its power is unreasonably exercised it will only bring about commercial paralysis, since no Government has the financial strength to become the universal employer on an uneconomic basis. We hope that employers will show that they also are capable of united action, for the logic of their position is irresistible.

Labour is obsessed by the belief that voting power alone can settle issues which must finally be tried by economic standards. If we take the workers' demands—

> 1. Membership of a trade union to be compulsory upon all workers.
>
> 2. Compulsory 48 hours working week in every occupation.
>
> 3. Compulsory minimum wage of 30s. per week for all adult workers.
>
> 4. No reduction of present wages or increase of working hours.
>
> 5. Complete recognition by employers of trade unions, and all agreements entered into between the unions and employers' associations.
>
> 6. State employment pay for men and women out of work.
>
> 6. Settlement by the unions of the conditions of women's employment after the war—

it will be seen how impossible the attitude of a large body of men may become, because during a great emergency all economic standards have been suspended. To prove the possibility of granting such terms, it would be necessary to show how we could continue to meet not a temporary expenditure in time of war, but a permanent expenditure in times of peace.

Mr. Ramsay says that the employers do not hesitate to recognise and treat with the men's unions and honourably to observe their undertakings. He adds that it may not be profitable to inquire whether the men can say as much. This reveals the weakness of many utterances on the subject, for we hold it to be vitally necessary to a settlement that such questions shall be considered and answered. If one party to an agreement is to be treated like a child no good can ever come out of prolonged discussions.

Mr. Ramsay's chapters on the American example and the Increase of Production contain some valuable detail, much of which traverses ground we are familiar with, but which cannot be made too well known to the public. The plain English of the position is that American Labour and American Capital have met as intellectual equals, and both have benefited by it, while English Labour seems sometimes to cling to the swaddling clothes of ignorance at an age when such garments hamper its prosperity.

The author discusses Arbitration, Food Control, and the permanent limitation of Employers' Profits as means towards bringing about commercial peace, and much that he says is well worth consideration and discussion; but in the main his book conveys the impression that his intellectual and reasoning powers lead him to conclusions which he tries to make palatable by counter-proposals which are the outcome of sympathy rather than of reason. We believe that more good will in the end be produced by an unvarnished statement of all the facts and logical deductions drawn therefrom. A patched-up understanding may have served present purposes during the war, but is no precedent on which to base a lasting peace between Capital and Labour, an end important for the future of every industry and of none more than for that of building.

* "Terms of Industrial Peace," by Alexander Ramsay. (Messrs. Constable.)

THE SURVEYORS' INSTITUTION.

WE take the following remarks on the housing question from the opening address, on Monday, of the new session of the Surveyors' Institution by Mr. A. L. Ryde (President):—

With regard to the effect of the war upon house property, from the figures given it is obvious that there is no great slump taking place in London, and it is, I believe, the fact that if the aggregate value of houses of the value of £150 per annum and downwards could be ascertained, it could be shown that there is no falling off in the annual value of the property. On the other hand, there is undoubtedly a considerable reduction in the annual value of large residential properties, both in London and the country. Quite apart from the expense of keeping up such properties, there has been an emigration of the occupiers into much smaller houses, a process which can be said to have taken place all down the scale. The result has been to keep up the value of small houses at the expense of the large.

I may add that the almost total cessation of building has had the effect of checking the growth of the supply of houses, and in spite of the enormous withdrawal of men for service abroad, there is a great demand for small houses and cottages all over the country. It is well known that in the neighbourhood of the large munition works which have recently been established the absence of housing accommodation has almost amounted to a scandal, and even in the smaller towns the effect has been to increase the amount of overcrowding in the smaller houses to a very objectionable extent.

In this connection it may be mentioned that, as a sequel to their recent Report on House Emergency Schemes for the purpose of providing Employment after the War, the Housing Committee were desired by the Council on December 11, 1916, to extend their inquiry to the causes which had given rise to the shortage of house accommodation for the working classes. The terms of the reference were:—

> "To consider and report to the Council as to the factors which in England and Wales have been mainly instrumental in checking the erection of houses for the working classes."

Had it not been for the Committee's Report, and the exhaustive manner in which the whole subject is there treated, its urgency would have made it incumbent upon me to devote a considerable part of my address to its discussion. In the circumstances, however, I feel that it would be superfluous for me to attempt to enlarge upon the Report, beyond calling your attention to the magnitude of the subject, as evidenced by the fact that the normal increase in the population as shown by the Census requires the erection of, approximately, 76,000 additional houses per annum, or about 100,000 in all, if those worn out, destroyed, or used for other purposes, are also brought into the calculation; whereas only about 60 per cent. of those required were built during the five years ending with 1915. I have no doubt that the existing acknowledged shortage will develop into a perfect famine of small houses when our men return from the war, unless energetic measures are at once taken to provide more accommodation.

MORE "THOMAS" AND SOME OBSERVATIONS ON HOUSING.

WHEN writing our Note last week on "Thomas"* we had not finished reading the book, but the pleasure it gave was so great that we could not help referring to it. We are now not quite sure that the "trail of the serpent" is absent from the work, for Mr. Creswell touches on the activities of the great Co-operative Stores which are such a feature of our modern life. Lady Jane Waterbury is an energetic supporter of the suffragette movement, married to an easy-going American millionaire. They inhabit a fine old historic house, but Lady Jane does not believe it to be hygienic, and so employs the Universal Stores to build her a new house, the work being carried out under the direction of Mr. William Wordsworth, Director of Sanitation, Architecture, and Building.

"You will see it plain, Cousin," said Singe, who had moved up behind us; "that old man, Wordsworth, has pegged out a new claim."

"Oh, do go away, Singe!" cried his wife.

"This design, Cousin," Singe went on, pointing with his cigar, "was webbed by the Stores. Those old women who come up at six o'clock and throw damp sawdust into the upturned bottoms of our trousers, have all had a dab at it; like stirring a Christmas pudding."

"Singe, do leave us alone."

Cousin Singe moved "out of the window," as he would say, and the plans were explained to me in detail. I don't, however, understand plans, and could not make my impressions of the actual building agree with what was shown on the drawings.

"The house looks much bigger on the ground than it does on paper," I said.

"They always do, I believe," Cousin Jane told me. "The men scatter things about so, and dig holes to such an extent that I have really given up trying to follow the work. The walls, however, will soon be up, and then we shall see."

On a second visit to the works Thomas guesses what is wrong, but like Brer Rabbit, "he lie low and ain't say nuffin."

I hurried out. We were evidently going to have some excitement, and I didn't want to miss anything. The sun shone; the ringing trowels made an almost continuous chorus; a traction engine was snorting on the road behind me with a load of bricks; a steam engine was running a mill to mix the mortar, and the whole concern working to perfection. What would Cousin Jane do? It was a nightmare. I hoped and prayed it would not fall to my lot to tell her what was happening. I hurried down to the place where Cousin Jane had already entered on her task of telling the foreman.

Lady Jane objects to the wetting of the bricks. "My good man," she says, "I want the house *dry*. Can't you understand that? I particularly told the person the Stores sent—Tell the man not to throw water on the bricks.

The climax comes when it is discovered that the Stores have sent the wrong goods, but the explanation is very simple. The order was—

THE STORES,

Sunday.

Lady Jane Waterbury will take the house, No. 2712, and it is to begin at once. She does not want any contract, but the work is to be done under a Shedule (can't spell it) as the Stores suggest. She will be glad to hear how soon the work can begin and when it will be finished.

What had happened was that the design intended by Lady Jane was numbered "two-seven-twenty-one," and she had described it as "two-seven-twelve." She had copied "twelve," however, from a Stores letter, and the whole thing resolved itself into a mistake of the typist who had written "twelve" instead of "twenty-one." The great William had imperishably confirmed the error with his momentous signature: "One house for Lady Jane Waterbury, No. 2712," had been put into the slot, so to speak, at the Stores, and its huge mechanism had been automatically thrown out of action. The whole blame clearly lay with the typist.

Thomas wisely, we believe, decides to motor off, thinking that he will obtain more pleasure from other visits because of the painful circumstances of the present.

Now Mr. Creswell's illustration of the intelligence and interest displayed by a section of the cultivated public in matters of building may serve as a useful lesson to architects who are enthusiastic about the housing crusade now being carried on, for while architects as a whole doubtless wish to serve the public, they also have a secondary but perfectly reasonable wish to make a living in doing so.

We can purchase everything, from soap to tombstones, at the Stores, and have the goods delivered free. It seems an absurdity that anyone should employ them to design and build, especially on a large scale; but we have occasional proofs that some do not look at the matter in the same light. We are ready to advise the municipalities that their borough engineers and surveyors should not be entrusted with the execution of even simple buildings, although many of them are very competent men, trained in constructional matters and having a grasp of planning, and we know that competitions will be instituted for producing a large number of standard designs for small houses.

What we may call the "Stores sample book" will be largely reinforced by the best designs which can be produced by architects, and yet, under all the circumstances of the case, some of us optimistically look forward to seeing the architect employed to an unprecedented extent in designing and carrying out housing schemes all over the country. If extensive State-aided housing is a vital necessity comparable with the supply of munitions of war, there seems to us no escape from the conclusion that such work will be chiefly carried out by municipal officials all over the country, and that all that will remain to the profession will be the task of supplying and suggesting the lines on which the best model dwellings can be built; but if, on the contrary, such work is to be carried out chiefly by private employers, public utility societies, and by builders as occasion dictates, a far greater number of architects in private practice will be employed. Everyone must settle the problem for himself; all we would urge is that no mistaken ideas should be formed as to what we believe are the inevitable results of certain circumstances.

Those who are convinced that great State-aided schemes of housing are absolutely vital and necessary will not be held back from advocating them because they are unlikely to bring "grist to the mill"; those who, like ourselves, are convinced that it is in the best interests of all that private enterprise should deal with future wants should not be deterred because they may be described as the defenders of vested interests; but it is equally important that the large middle body of architects, whose convictions are not very definite, should not support measures from opportunist motives without sufficient thought and investigation. We know that no man can be described as being irreplaceable, and it is equally necessary for the architectural profession to recognize that surveyors and engineers are frequently men who can carry out utilitarian works to the satisfaction of the public. We say this though we strongly hold that it would be a very great advantage to the public if competent architects were employed for the design of all building work. But we also say, that until the education and qualification of architects as a whole reaches a higher standard, and the public understand the advantage to be gained from employing them, it is useless to expect too much.

And much would be gained by the elimination of the rivalry and jealousy which tend to separate architects from surveyors and engineers, all of whom have to deal with great constructive problems. Our special cause will be advanced by means of the raising of the average standard of education and attainments, especially if these qualities are combined with toleration and a knowledge of the world, and architects have everything to gain by a frank recognition of ability displayed by those whom they may in some sense hold to be professional rivals.

* "Thomas." By H. B. Creswell (Nisbet, 5s. net).

Books Received.

OUR HOMELAND CATHEDRALS—ENGLAND, SOUTH, EAST AND WEST. (London: The Homeland Association. 3s. net.)

OUR HOMELAND CATHEDRALS—NORTH OF ENGLAND AND WALES. (London: The Homeland Association. 3s. net.)

COMPETITION NEWS:

HOUSING OF THE WORKING CLASSES IN ENGLAND AND WALES.

The following are the particulars of the Cottage Competitions arranged by the Royal Institute of British Architects, and referred to in our last issue:—

The Local Government Board, being desirous of obtaining designs for cottages suitable for the housing of the working classes, have placed at the disposal of the Royal Institute of British Architects a sum of money for this purpose, and the Institute has therefore decided to invite its Allied Societies to assist in obtaining designs under the following conditions:—For the purpose of the competition, the country is divided into six areas, comprising the districts of the Allied Societies and the R.I.B.A., as follows:—

I. *Northern Area*—
- Northern Architectural Association.
- Leeds and West Yorkshire Architectural Society.
- York and East Yorkshire Architectural Society.
- Sheffield, South Yorkshire and District Society of Architects and Surveyors.

II. *Manchester and Liverpool Area*—
- Manchester Society of Architects.
- Liverpool Architectural Society.

III. *Midland Area*—
- Birmingham Architectural Association.
- Nottingham and Derby Architectural Society.
- Leicester and Leicestershire Society of Architects.
- Northamptonshire Association of Architects.

IV. *South Wales Area*—
- South Wales Institute of Architects.

V. *South-West Area*—
- Devon and Exeter Architectural Society.
- Bristol Society of Architects.
- Hampshire and Isle of Wight Association of Architects.

VI. *Home Counties Area*—
- Royal Institute of British Architects.

CONDITIONS.

VI.—HOME COUNTIES AREA.

1. Pursuant to the scheme above described, the Royal Institute of British Architects invite designs for cottages in accordance with the instructions and particulars stated below. The competition is open to any British subject.

2. The designs are to be suitable for erection in urban and rural districts in the counties of Norfolk, Suffolk, Cambridge, Huntingdon, Middlesex, Essex, Hertfordshire, Bedfordshire, Oxfordshire, Buckinghamshire, Berkshire, Surrey, Sussex, and Kent.

3. The designs are to include four classes or types of cottages as described below, and premiums are offered as follows:—

	1st.	2nd.
	£	£
Class A	100	50
„ B	100	50
„ C	100	50
„ D	50	30

4. The adjudication will be made by a Committee of not less than three architects appointed by the Royal Institute of British Architects, and their judgment is to be accepted as final.

5. It is to be understood by competitors that the payment of the premiums conveys the absolute possession of the designs, including all copyright or other rights, and that the promoters will be at liberty to make any use whatever of the designs, and to publish them with the names and addresses of the authors. The promoters reserve the right to exhibit publicly, after the award, all or any of the designs as they may think best with the names of the authors attached. No architect shall compete in more than one area.

6. Designs are to be prepared strictly in accordance with the instructions below, and any

design which does not so conform will be excluded. On this point the Committee of Selection are to be the sole judges.

7. Designs are to be delivered carriage paid to the Secretary R.I.B.A., 9, Conduit-street, Regent-street, London, W. 1, on or before the 13th January, 1918.

8. The unsuccessful designs will be returned to the authors carriage paid as soon as practicable.

9. Any questions must be addressed to the Secretary of the Royal Institute of British Architects, 9, Conduit-street, W. 1, on or before the 27th November. Replies will be issued to all competitors as early as possible.

10. Each set of designs is to be accompanied by a sealed envelope containing the name and address of the author.

11. No motto or distinguishing mark is to be put on the drawings.

12. Every care will be taken of the drawings, but the promoters will not be responsible for any damage they may sustain, or for their loss.

13. Designs may be submitted in any or all of the classes as follows:—

CLASS A.—Living room, scullery, &c., and three bedrooms.

CLASS B.—Living room, parlour, scullery, &c., and three bedrooms.

CLASS C.—Living room, parlour, scullery, &c., and two bedrooms.

All the above to be treated as two stories.

CLASS D.—Variations of either A, B, or C planned entirely or mainly on one floor. Larder, fuel store, w.c. or e.c., cupboards, &c., to be included.

14. In all cases back additions are to be avoided or minimised as much as possible.

15. All houses are to be provided with a fixed bath and a cold-water supply. Arrangements for the supply of hot water are to be indicated on the plan.

16. Positions of all principal pieces of furniture such as dressers, tables, beds, &c., together with opening of doors, the points of the compass, and dimensions of rooms, are to be indicated on the plan.

17. In Classes A, B, and C several houses must be shown as a block, of which three are to be planned in detail, the others in outline only. Of these three, one is to be an end or semi-detached house; another a terrace house or one between party walls with narrow frontage (not exceeding 18 feet), and a third with wide frontage. The depth of the site is left to the discretion of the competitors, and the site may be regarded as level.

18. The general height of rooms is to be not less than 8 feet, the floor area of the principal bedroom to be not less than 160 feet, and no bedroom to be less than 70 feet.

19. The plans may be prepared without regard to any existing by-laws or local Act provisions, the object being to show the best types possible if existing restrictions are removed.

20. Each design is to show plans of each floor, one section indicating the staircase, and two elevations, and to be drawn to a scale of $\frac{1}{8}$th of an inch to the foot on half double-elephant sheets. No other drawings to be submitted.

21. All drawings are to be in line only without washes, with the walls blacked in, and are to be sent flat.

22. The designs in each of the Classes A, B, C, and D are to be on separate sheets. Notes of materials, &c., are to be printed on the drawings, together with the cubic contents of each house measured from one foot below the floor to half way up the roof. No separate report is necessary.

23. Wherever possible, materials of the locality, if reasonably obtainable, should be specified, but as there exists at the present time a serious shortage of certain materials, competitors are invited to consider and suggest the substitution of others with a view to facilitating and cheapening construction. It is essential that strict economy be exercised throughout the design, and this will be an important consideration in making the awards.

GENERAL NEWS.

Housing in Rosyth.

From the annual report of the work of Dunfermline Dean of Guild Court, prepared by the Master of Works, it appears that the year has been a record one. New buildings passed by the Court are estimated at a value of £490,670, as compared with £205,855 for last year, which also established a record. The value of dwelling-houses is £450,000; public buildings, £12,757; and roads and sewers, £26,000. The cause of the record is the development at Rosyth, where 1,600 houses are being erected.

Serbo-Croatian Art.

The Serbian Relief Fund and the Serbian Red Cross announce an Exhibition of Serbo-Croatian Art to be opened at the Grafton Galleries on December 1. Important new works by Ivan Mestrovic and other well-known Serbian artists, will be exhibited. Concerts of Slavonic music and lectures on Serbian history, art and literature will be given. Official photographs of the great retreat, peasant embroideries, hand-woven materials and carpets will add to the interest of the exhibition. A feature will also be made of a Serbian coffee and tea room.

The Institution of Civil Engineers.

The Council of the Institution of Civil Engineers have made the following awards for Papers published in the Proceedings without discussion during the Session 1916–1917:—A Watt Gold Medal to Major H. S. B. Whitley, R.E. (Neath); Telford Premiums to W. C. Popplewell (Manchester); Herbert Carrington (Woodley, Stockport); Dr. A. A. Stoddard (Bournemouth); A. E. L. Chorlton, C.B.E. (Lincoln); and B. M. Samuelson (Rangoon). The Manby Premium to R. Bleazby (Perth, W.A.). The Webb Prize to J. B. Ball (London). The Howard Quinquennial Prize to Dr. W. C. Unwin, F.R.S.

"Concrete and Constructional Engineering."

The current number of *Concrete and Constructional Engineering* contains many interesting features, including the following illustrated articles:—"The Cunard Building, Liverpool," by Mr. E. G. W. Souster, A.R.I.B.A.; "Stresses in Rectangular Frames," by Mr. G. R. Magnel (concluded); "Reinforced Concrete Gas Mains"; "Reinforced Concrete Piggery at Springhill, Dundee," by Mr. J. H. Langlands; "A Scheme of One Hundred Concrete Dwellings under One Contract in U.S.A."; "Concrete Shipbuilding"; and "Recent Views on Concrete and Reinforced Concrete: Unit Construction in Concrete," by Mr. John E. Conzelman.

Compensation for War Damage.

A few days ago, the Lord Mayor presided over a meeting of the committees of the Committee on War Damage, held at the Mansion House. The meeting was called to consider the scheme laid before Parliament for giving compensation for war damage without insurance. In welcoming the mayors and other representatives of municipal authorities and churches, the Lord Mayor said that half a loaf was better than no bread, but that the scheme fell so far short of what they had had a right to expect from the promise of the Prime Minister that they could not be content with it. Mr. Mark H. Judge, chairman of the committee, proposed a resolution expressing disappointment at this insufficient outcome from the Prime Minister's reply to the committee on July 13, especially as all sufferers before September and all sufferers in person had been left out of account, and calling for its immediate reconsideration by the Government. The Lord Mayor of Hull seconded the resolution, which was passed unanimously.

New Linen from Old Plans.

The voluntary organizations for supplying comforts to our wounded sailors and soldiers working under the directions of the Army Council have been providing, among many other things, enormous numbers of bandages and splints for the hospitals. There is urgent need of further supplies of muslin, calico, and linen, and, says the *Times*, it is difficult to know where to turn to obtain these. In the offices of engineers and architects, of railway companies and shipbuilders, of county councils and municipalities, there are large numbers of obsolete drawings and tracings, cartoon maps, and diagrams mounted on calico and linen, for which there is no further use. It has been found that the muslin and calico on which these drawings are mounted, and particularly the tracing cloth, are of excellent quality, and when washed, cleaned, and sterilized most suitable for surgical work. The drawings are soaked in a pond for 24 hours, and the linen stripped from the paper and then boiled and washed. The paper goes to paper-makers. It is, therefore, a matter of great urgency that all such drawings and tracings should be turned to national use. Inquiries on the subject should be addressed to Sir Francis Fox, Alyn Bank, Wimbledon, S.W., who is dealing with the matter.

British Industries Fair.

Next year's British Industries Fair, for which application forms for exhibiting space are now being issued by the Board of Trade, will be considerably larger than those of previous years. The last two fairs were held in the Victoria and Albert Museum and the Imperial Institute; and though very successful, the space which was then available was by no means sufficient to meet the demands of the exhibitors. In many cases, in fact, exhibitors' applications for space had to be cut down by as much as 60 per cent.; and the fact of the fair being in two buildings caused some inconvenience. The 1918 fair, which will, as usual, open on the last Monday in February (February 25), and remain open for a fortnight, is to be held in premises only a few minutes' walk from Mark-lane station on the Metropolitan and District Railways, which the Port of London Authority have placed at the disposal of the Board of Trade, and it is hoped that the available space will be sufficient to meet exhibitors' requirements, at any rate for this coming year, as the fair will, owing to the war, again be restricted to the following trades: Earthenware and china trade; glass trade; fancy goods trade; paper, stationery and printing trades; and toy and games trade. As the increased size of the fair and the growing shortage of labour will make the work of preparation exceptionally difficult, it is hoped that firms who are anxious to exhibit will send in their applications for space to the Director, British Industries Fair, 10, Basinghall-street, London, E.C. 2, at the earliest possible moment.

MEETINGS.

FRIDAY, *November* 16.

Institution of Mechanical Engineers (at the Institution of Civil Engineers, Great George-street, Westminster).—Mr. A. W. Purchas on "Air Lift Pumping." 6 p.m.

TUESDAY, *November* 20.

London University College.—Professor S. D. Adshead, M.A., F.R.I.B.A., on "Housing Problems after the War" (Lecture III). 5 p.m.

TUESDAY, *November* 20.

Institution of Civil Engineers.—Sir Robert Richard Gales, F.C.H., M.Inst.C.E., on "The Hardinge Bridge over the Lower Ganges at Sara."

WEDNESDAY, *November* 21.

Royal Society of Arts.—Mrs Alan A. Campbell Swinton, F.R.S., on "Science and its Functions." 4.30 p.m.

WEDNESDAY, *November* 21.

Egypt Exploration Fund (at the Rooms of the Royal Society).—Dr. B. P. Grenfell on "New Papyri from Oxyrhynchus." 3 p.m.

THURSDAY, *November* 22.

Institution of Electrical Engineers.—Mr. T. M. Hunter, M.A., B.Sc., on "Gas Firing Boilers." 5.30 p.m.

Leading Contents.

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ILLUSTRATIONS.

The illustrations of St. Thomas's Schools, Birmingham, are given in connection with the article which appears on page 289. The cottages are taken from the Report noticed below.

HOUSING IN SCOTLAND.

The Local Government Board of Scotland have performed a very useful work in issuing a Special Report,* illustrated with relative specifications and plans, of the various types of small dwelling-houses suitable for different parts of Scotland; and in view of the competitions now announced for houses for the working classes, we believe the publication may be of especial interest.

The designs are the work of Mr. John Wilson, F.R.I.B.A., and though it is not intended that they should be taken as more than suggestions, they will serve a very useful purpose in showing municipal authorities the standard to be reached. We have always thought it unfortunate that our own Local Government Board and the Education Department have never issued similar documents illustrating their views as to the standards to be aimed at in elementary schools and Poor-Law buildings. It is true that in the latter case the official publication contains a few plans, but the subject might easily be more fully illustrated with advantage to the transaction of business and the granting of official sanctions. Many architects have been called on to prepare plans for additions to workhouses and have had the greatest difficulty in persuading their clients that they would have to build up to a much higher standard than their clients thought necessary, and on the other hand many inexperienced architects have given the Board's official advisers much unnecessary trouble as the result of their ignorance. And the same difficulties frequently occur with respect to schools. If the departments concerned would issue plans of a similar nature to those we illustrate these difficulties would largely disappear, especially if the Boards sent such documents to the authorities when schemes were first under discussion. And if such matter were revised and brought up to date every five years the whole level of planning would be raised, to the benefit of the public.

The Appendix, which is written by Mr. J. Wilson, contains a useful summary, divided into sections, which deal with the general design and type of houses and the requirements to be aimed at in their component parts, and a very useful summary of constructional details to be attended to. It also deals with the enclosure of sites, the price of building sites, and other cognate matter, such as the finance of building schemes, the building materials to be had in different areas, and specimen specifications and bills of quantities for two of the types of houses shown. It is, in brief, a tersely and well written treatise on the whole subject, the issue of which will be of the greatest use to the small builder, the architect, and the public authority called upon to deal with the subject of housing, and is a model of the manner in which an official department should deal with an important matter.

We do not propose to criticise the designs shown, many of which are doubtless open to such criticism in part. The essential thing is that a departmental authority has wisely cut itself adrift from the old traditions which for years have confined them to stating little that was directly informative, to laying down prohibitions and making general statements, which have often been confusing in the absence of illustration, and which have sometimes puzzled the pundits themselves.

* "Special Report with Relative Specifications and Plans," prepared by John Wilson, F.R.I.B.A., Architectural Inspector to the Local Government Board of Scotland on the design, construction, and materials of various types of small dwelling-houses in Scotland. Issued by H.M. Stationery Office, Edinburgh, and to be obtained from Messrs. Wyman & Sons, Fetter Lane, E.C.4., price 1s.

CORRESPONDENCE.

Building By-laws.

SIR,—May I remind your readers to whom the subject of Building By-laws particularly appeals that this correspondence originated in the *Times* newspaper of September 8, and was continued by architects who alleged, as they have at various times in the past alleged in the columns of daily newspapers, that such by-laws are the impediment to the provision of "cheap, rapidly erected, sound and pleasing houses," and that they constitute "a cumbrous means of preventing definite evils."

The inference which was apparently intended to be conveyed and accepted was that the shortage of houses was in considerable measure due to the operation of building by-laws.

Inasmuch as the famine in cottages is, next to the war, probably the most serious problem which the Government have to deal with at the present time, and as every means needs to be taken to remove all potential obstacles to the erection of sound and hygienic dwellings, I suggested, as one who has had perhaps exceptional opportunities in connection with by-law administration, that concrete instances should be furnished in support of these general allegations with a view to discovering whether, if any, and where, restrictive or objectionable by-laws were in force so that measures might be taken, if practicable, to secure their repeal.

In my letter in the *Builder* of the 12th ult. I pointed out that there appeared to be no foundation for the allegations as regards modern building by-laws, and therein was contained what was practically a repetition of the challenge—to those architects who use the daily newspapers to complain of the evil effects of the by-laws—to cite specific instances in support of their allegations in your columns, which are the proper channel for the purpose, and where, as you have stated, they can be adequately dealt with.

A period of four weeks has now elapsed since my letter appeared in your pages, during which our good friends have had ample opportunity to substantiate their allegations and to prove that by-laws are, as they have asserted, the impediment to the building of cottages and that they are oppressive, cumbersome and the like.

And what has been the outcome? Only one architect, viz., Mr. M. H. Baillie-Scott, has attempted an answer, and I am not sure whether his letter is intended to be taken seriously. For, stripped of its equivocalness, the only two definite complaints which can be discovered in it are that building by-laws are anathema because they allow builders to put in large windows, and because they do not permit architects to erect dwellings with a ceiling height of 6 ft. 6 in.! A correspondent, "A. H. M."—a quantity surveyor—in a letter in the succeeding issue pointed out that Mr. Baillie-Scott was hopelessly wrong concerning the window question, whilst you, sir, in your Editorial Notes in the issue of September 21, with a true recognition of the hygienic requirements of dwelling rooms, demolished the low ceiling myth by stating that "rooms which are less than 8 ft. 6 in. or 9 ft. in height are not as a rule healthy." Mr. Baillie-Scott's complaints are, I think it will be agreed, undeserving of really serious notice.

The collapse of anti-by-law architects is noteworthy and in some respects unfortunate, for such will be regarded with considerable amusement by those who are officially concerned with the administration of the much-abused by-laws.

But the correspondence will, there is little doubt, have a further sequel. For the letters of Mr. Baillie-Scott, with others of the same character, will widen the opinion which prevails that building by-laws after all are undoubtedly necessary as a protection for occupiers against the caprices of some architects.

How far the opposition to building by-laws as such is really disingenuous, and the apparent antagonism is a consequence of the mode of administration of such by-laws, architects can and probably will eventually answer. That the officers appointed by some rural district councils to act as building surveyors and inspectors are not infrequently without practical architectural knowledge and have a tendency to strain the requirements of the by-laws cannot be denied. Consequently the supervision of buildings during erection by such officers appears to constitute a source of irritation to some architects. This aspect of the subject is, it must be admitted, entitled to sympathetic consideration. But redress, I suggest, is much more likely to be ultimately obtained by adopting another procedure than that of attacking the by-laws when it is against their mode of administration that objection is really aimed.

C. CHAMBERS SMITH,
Editor of *Municipal Engineering*.
London, November 7, 1917.

How We Forge Fetters for Our Own Feet.

SIR,—A wise and far-seeing body of architects have, in conjunction with the Local Government Board, arranged a competition for cottage design, the regulations for which state that competitors need not consider the requirements of any building by-laws. But also they have inserted a clause wherein it is provided that all rooms must be 8 feet high.

All artists will agree that the sense of proportion is peculiarly a matter of personal taste, and that there can be no absolute standard of proportions. And therefore, it is essential to the artist, that in this matter he should be free and faithful to his own instincts. A large body of artists feel that, as many cottage rooms are limited to 10 or 12 feet in length, the height necessary to good proportion should be less than 8 feet. I think any room less than 20 feet in length should not be as much as 8 feet high. Designers should be left absolutely free in this matter. For it is not the height of a room that ensures its healthy conditions. The effect of this restriction as to height not only imposes what nearly all artists regard as bad proportions; but it keeps up the absurd delusion, already deeply ingrained in the public mind, that height of the ceiling contributes to the ventilation and healthy conditions of a room. Ventilation might very wisely be insisted upon. But to perpetuate the wrong proportions of cottage architecture by repeating the one most mischievous building by-law provision ever invented, and so to add useless expenditure, is truly astounding.

The practical outcome of this regulation must be to prevent all those who feel the wrongness of such proportions from entering into the competition.

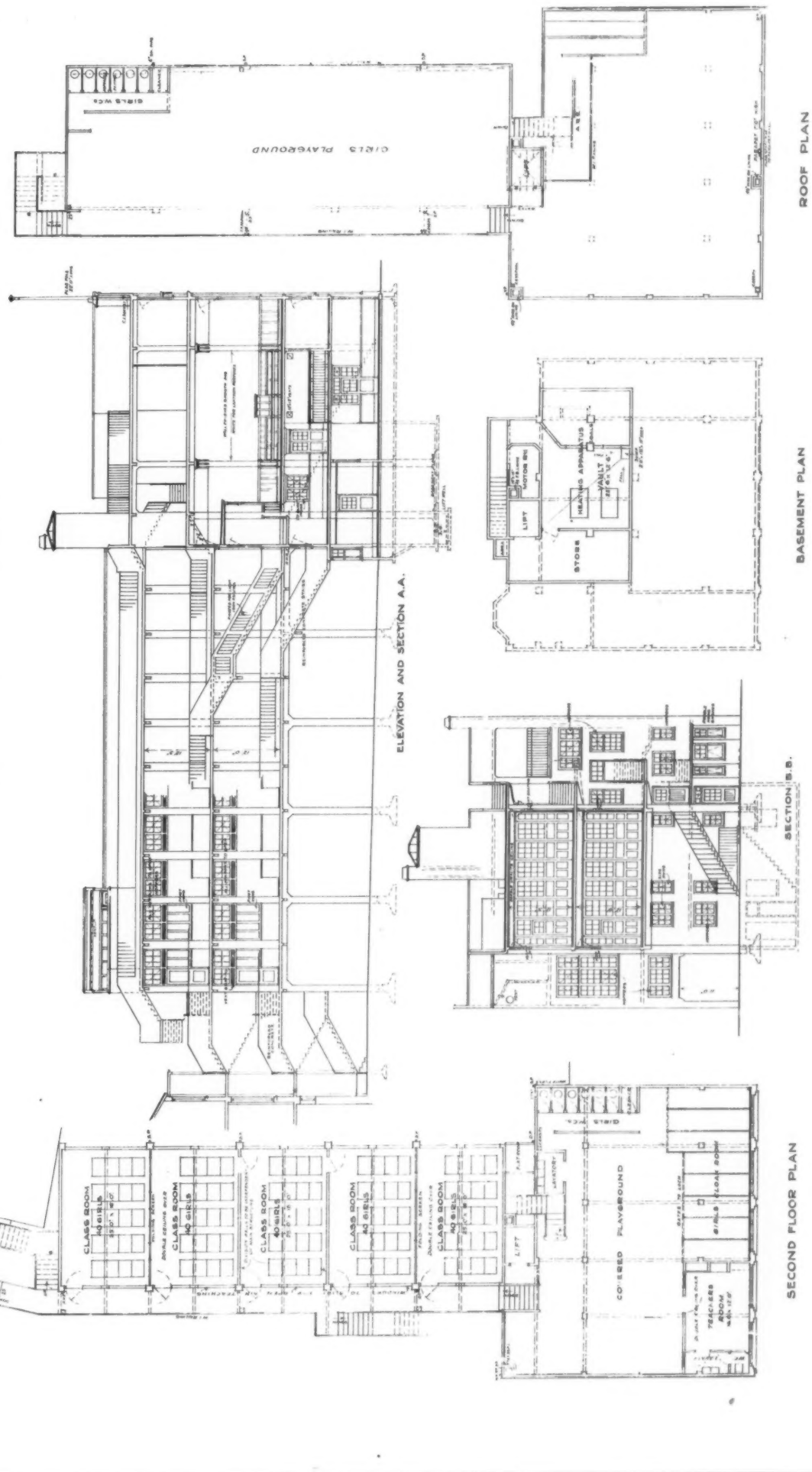
C. F. H. VOYSEY.

Book on Concrete Cottages.

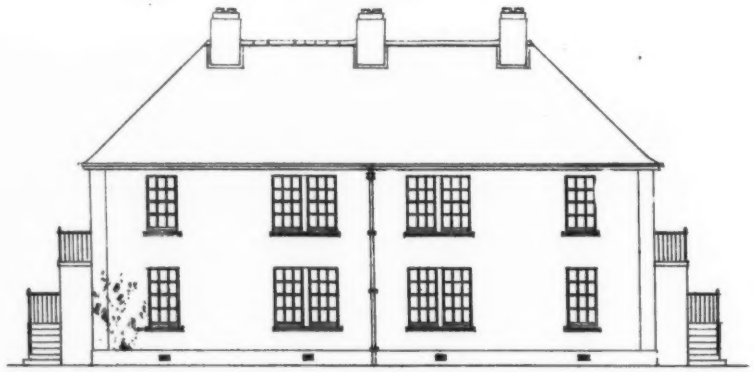
SIR,—Reference has recently been made in the technical press to the fact that no book on the construction of small dwellings in concrete is available for those who wish to adopt this form of building. In the interests of your readers and of the profession generally, and in view of the competitions shortly to be held under the auspices of the Royal Institute of British Architects, I should like to take this opportunity of calling attention to the fact that a book on "Concrete Cottages," by Mr. A. Lakeman, M.S.A., is now in the press, and will be issued almost immediately.

T. J. CLARK.

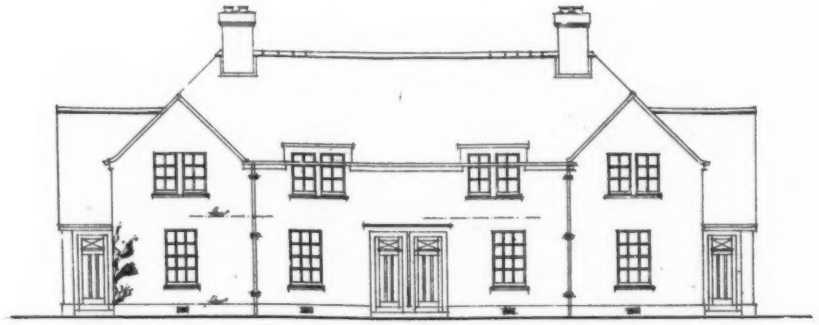
EXTENSIONS TO
ST THOMAS' SCHOOL, BATH ROW, BIRMINGHAM.



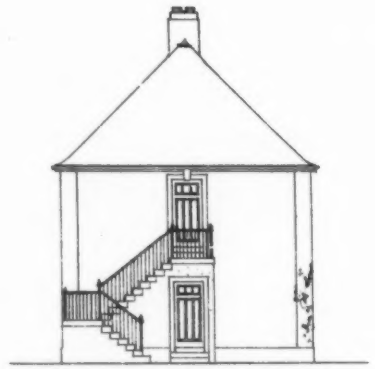
MESSRS. ARTHUR HARRISON, F.R.I.B.A., AND G. B. COX, ARCHITECTS.



·Front · Elevation·



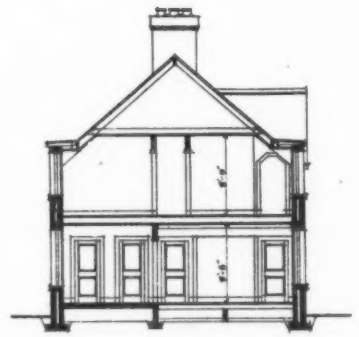
Front Elevation.



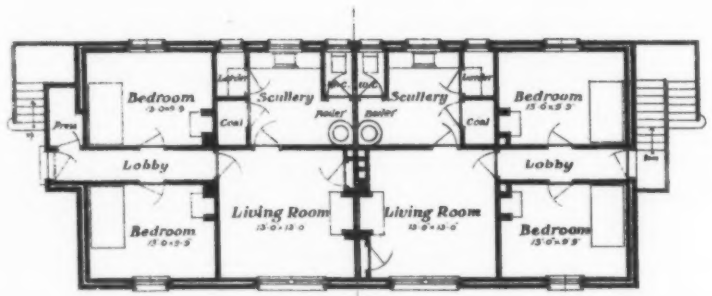
·Side · Elevation·

·Section·

Side Elevation

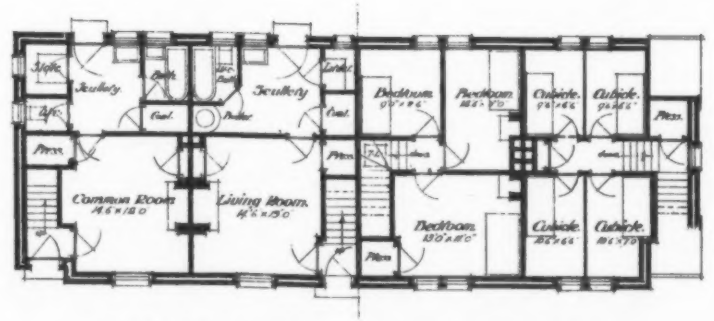


Section



·Ground·Floor·Plan· Upper Floor Plan

Scale of Feet



Ground Floor Plan. Upper Floor Plan

Scale of Feet

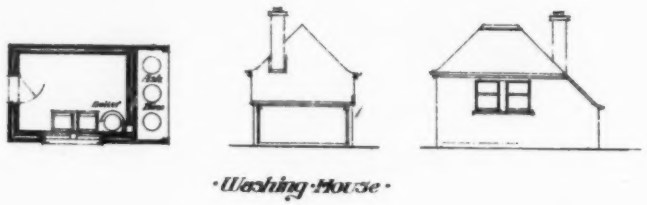
FLATTED HOUSES.

(NOTE THAT OUTSIDE STAIRS ARE GENERALLY PREFERRED.)

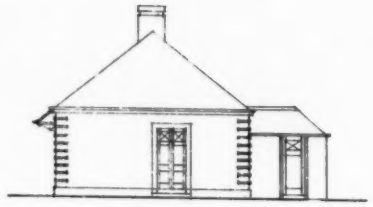
HOUSES FOR FARM SERVANTS.

It is suggested that the two centre houses should be occupied by married farm servants, who might do the house work for the single men accommodated in the end houses.

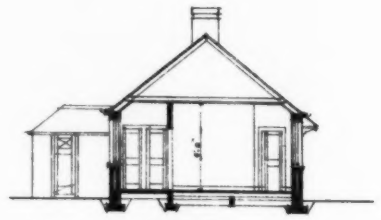
From the "Special Report by Mr. JOHN WILSON, F.R.I.B.A., on the Design, Construction and Materials of various types of Small Dwelling-Houses in Scotland," by permission of the Controller of His Majesty's Stationery Office.



Washing-House.



Side Elevation



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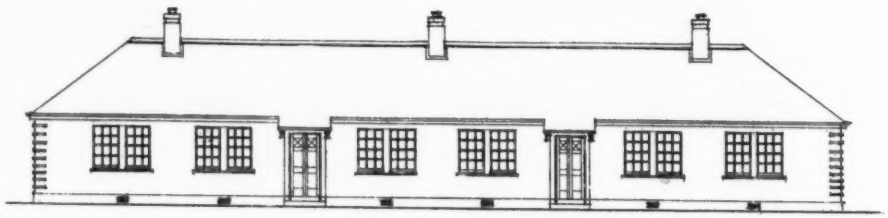
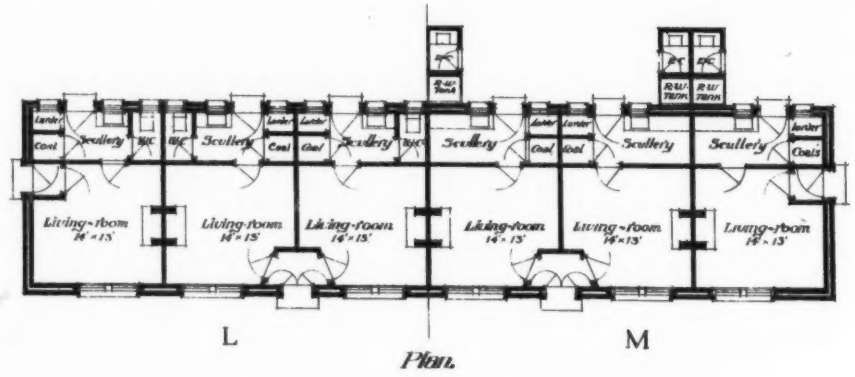


Front Elevation.



Plan.

Scale of Feet

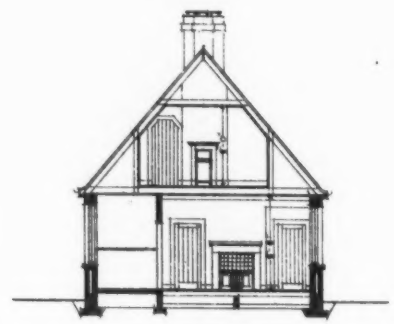
0 5 0 10 20 30 40 50

HOUSES SUITABLE FOR AGED WOMEN.
OR FOR A WOMAN AND CHILD.

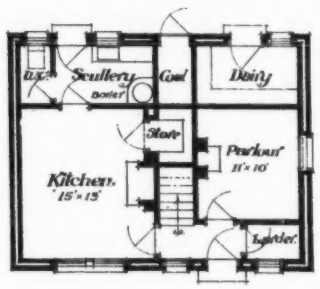
Front Elevation.

Back Elevation.

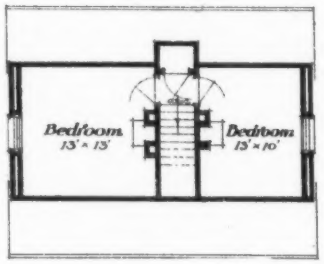
Side Elevation.



Section.



Ground Floor Plan.



Upper Floor Plan.

Scale of Feet

0 5 0 10 20 30 40

HOUSE FOR SMALL HOLDERS AND CROFTERS.
FARM BUILDINGS OMITTED.

From the "Special Report by Mr. JOHN WILSON, F.R.I.B.A., on the Design, Construction and Materials of various types of Small Dwelling-Houses in Scotland," by permission of the Controller of His Majesty's Stationery Office.

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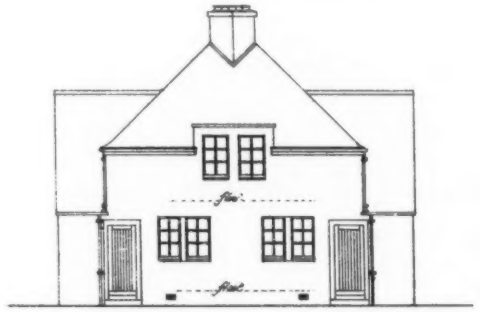
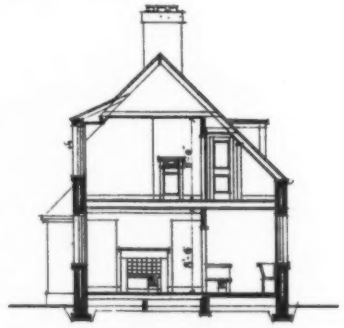
·Front·Elevation·



·Back·Elevation·

·Side·Elevation·

·Side·Elevation·



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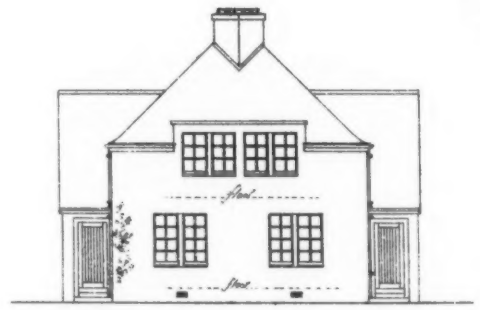

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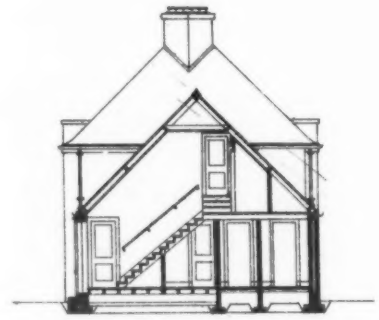
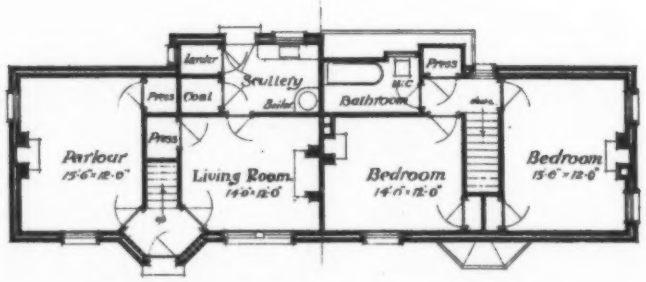
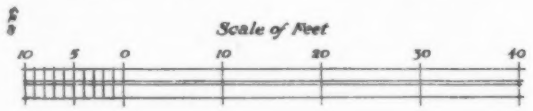
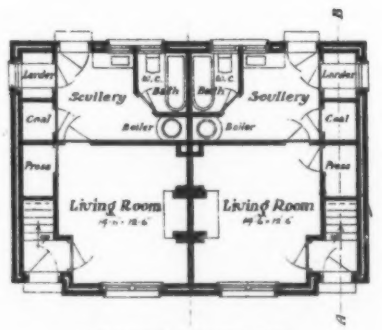


·Section A·B·

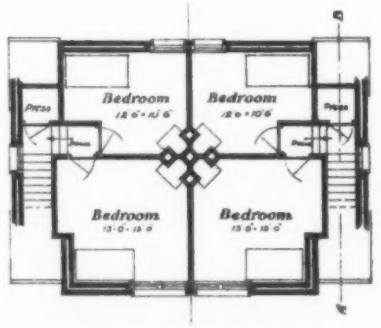


·Ground·Floor·Plan· ·First·Floor·Plan·

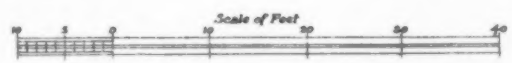




·Ground·Floor·Plan·



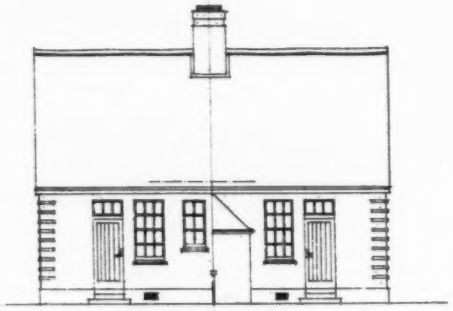
·Upper·Floor·Plan·



COTTAGE DESIGNS SUITABLE FOR
THE GREATER PART OF SCOTLAND.

From the "Special Report by Mr. JOHN WILSON, F.R.I.B.A., on the Design, Construction and Materials of various types of Small Dwelling-Houses in Scotland," by permission of the Controller of His Majesty's Stationery Office.

·Front·Elevation·



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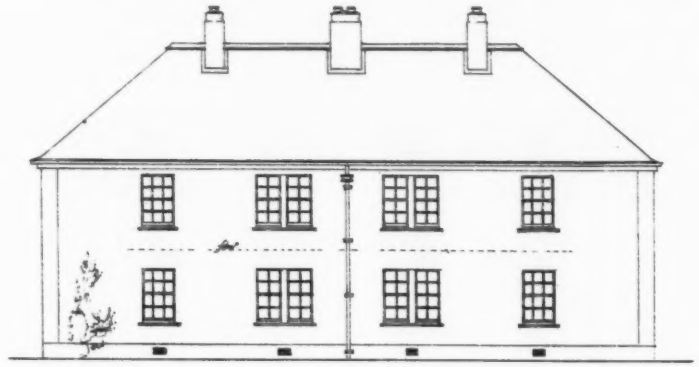


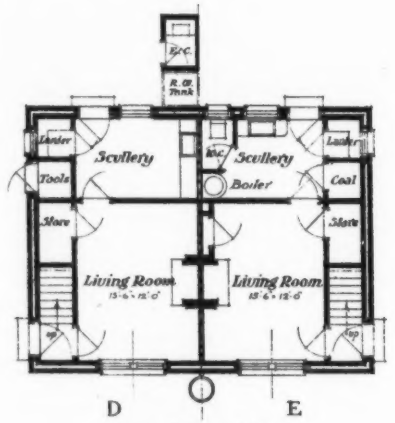
·Front·Elevation·

·Side·Elevation·

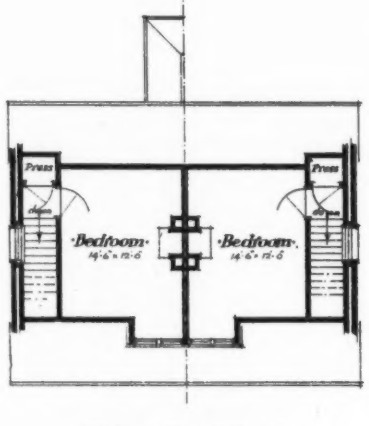
·Section·

·Side·Elevation·

·Section·



·Ground·Floor·Plan·

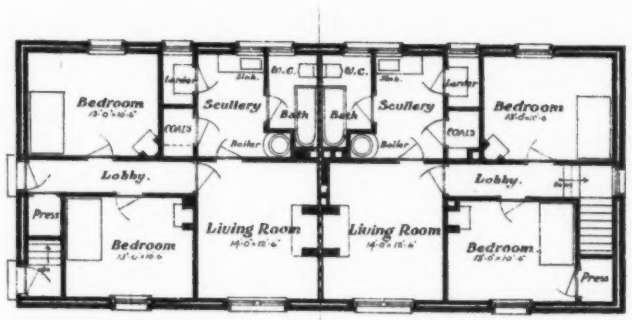


·Upper·Floor·Plan·

Scale of Feet

10 5 0 10 20 30 40 50

COTTAGE DESIGN WHERE GRAVITATION WATER SUPPLY IS NOT AVAILABLE AND WHERE PEAT IS USED AS FUEL.



·Ground·Floor·Plan·

·Upper·Floor·Plan·

Scale of Feet.

10 5 0 10 20 30 40

FLATTED HOUSES.

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COTTAGE DESIGN WHERE GRAVITATION WATER SUPPLY IS
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FLATTED HOUSES.

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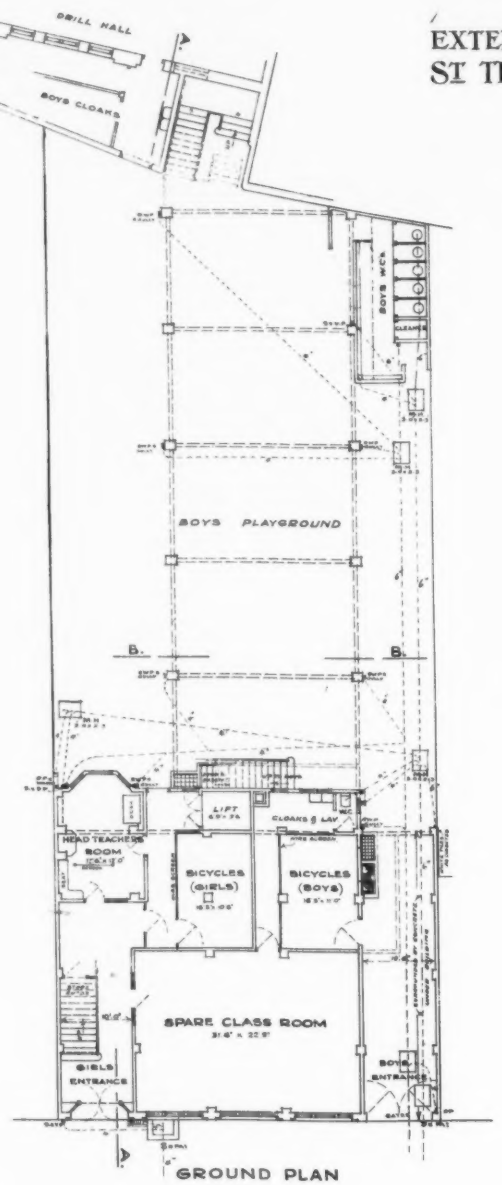
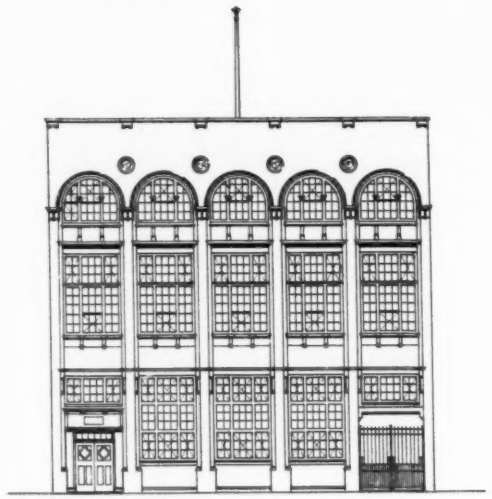
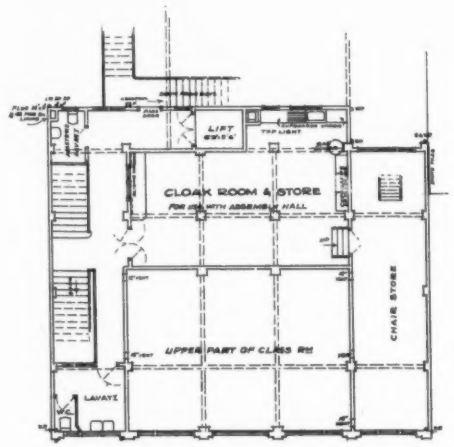
EXTENSIONS TO ST THOMAS' SCHOOL, BATH ROW, BIRMINGHAM.



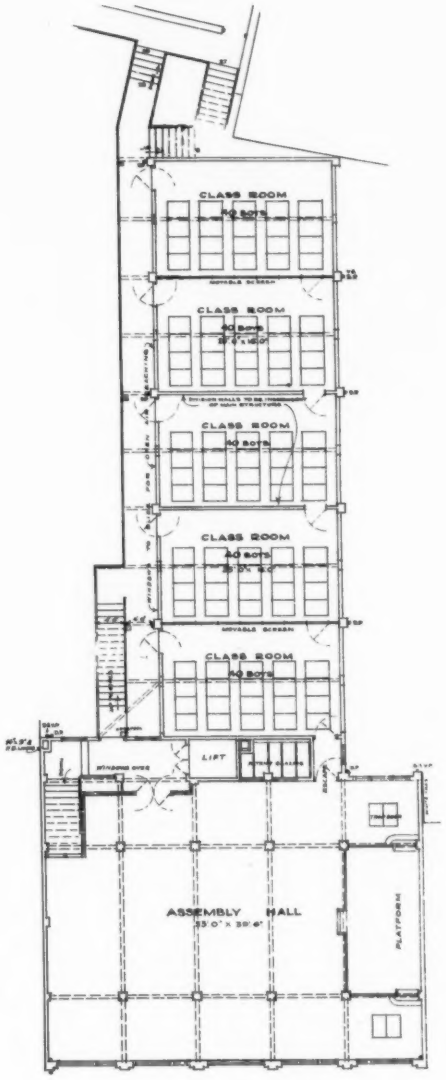
GROUND PLAN



ELEVATION TO GRANVILLE STREET



MEZZANINE PLAN



FIRST FLOOR PLAN

SCALE
0 5 10 20 30 40 50 FEET

MESSRS. ARTHUR HARRISON, F.R.I.B.A., AND G. B. COX, ARCHITECTS.

ST. THOMAS'S SCHOOLS, BIRMINGHAM.

RECENT EXTENSION IN FERRO-CONCRETE.

The schools founded nearly ninety years ago by the important parish of St. Thomas's, Birmingham, are the largest Church of England schools in the city, and the additional building which was formally opened by the Bishop of Birmingham in July last is characteristic of the latest developments in design, construction and equipment, and being built in ferro-concrete throughout it possesses the double advantage of being both fireproof and bombproof.

At the time of their establishment in the year 1831, the schools, situated near St. Thomas's Church, in Granville-street, consisted of a two-story building for the boys' and girls' departments, and a one-story building for infants, the premises affording accommodation for about 700 scholars. In 1871 the infant school was rebuilt and the other departments were remodelled at a cost of some £1,912. Two successive enlargements were carried out in 1892 and 1894 at a cost of £2,479, on a site in Bath-row presented by Mr. J. W. Lea. In 1907 further additions were made in Chequers-walk at a cost of £2,900, the requisite site having been the gift of the same generous donor.

In 1890 the roll included 861 scholars, and the numbers increased steadily year by year until in 1916 the schools were attended by 1,493 scholars. Owing to the increased numbers and the requirements of the Board of Education, additional accommodation became necessary, and Messrs. Harrison & Cox were commissioned to prepare the scheme which has been realised by the completion of the present extension.

This project provided for a three-department school with ample accommodation for 700 senior mixed scholars, 422 junior mixed scholars, and 400 infants, or 1,522 scholars in all. In view of their extensive accommodation and central position at the corner of Bath-row and Granville-street, in the centre of the city, the schools may be justly regarded as one of the most important among the educational establishments in Birmingham.

The difficulties in the way of acquiring adjoining property for school extensions in built-up and populous districts are often insurmountable, and in the case of St. Thomas's Schools the sole available site for the new building was of a very restricted area and joined the old premises only at one narrow end. This condition naturally affected the planning of the extension and led to the adoption of the Mouchel-Hennebique system of ferro-concrete for the construction of the building.

In view of the accommodation required to meet the varying and increasing needs of the schools, and of the narrowness and restricted area of the site, ferro-concrete construction has certainly given results far more satisfactory than those which could have been secured by the use of any other material or method of construction.

The interior space gained by substituting a ferro-concrete structure, with thin exterior walls, for an ordinary building with massive brick walls was, in this instance, a consideration of the highest importance. The customary objections to a lofty building for school purposes are eliminated by the fireproof nature of the construction adopted, and which was applied to the entire fabric, including the spacious staircases connecting all the floors and the terrace roof, the latter as well as the structure generally affording safety from attack by aerial bombs as well as from injury by fire. Another advantage gained by the adoption of ferro-concrete was the facility offered for the provision of a covered playground under the class rooms, and of two open-air playgrounds for girls on the terrace roof.

The new building is linked up with the old schools by a ferro-concrete staircase which serves the different levels of the boys' departments, while the girls' department is reached by the main entrance in Granville-street.

As shown by the drawings reproduced, the elevation to Granville-street is of simple but appropriate character, suggesting at once the material of which it is constructed, a noteworthy feature being the proportionately large window area in the façade. Over the chief entrance is fixed a bronze tablet to the memory of Mr. H. R. Birch, the late headmaster, to whose indefatigable efforts during the past quarter of a century the schools owe so much of their success.

On the ground floor is a large room dedicated to the late Rev. W. G. S. Whicker, a former rector of the parish, and which will be used as a spare class room, for medical inspections, and for other purposes. On the same floor there are also a private room for the headmaster, bicycle and cloak rooms for boys and girls, and lobbies in connection with the staircase and lift.

Additional cloak room accommodation is provided on the mezzanine floor, which extends over the ground floor with the exception of that portion occupied by the upper part of the Whicker room. Over the latter and the mezzanine floor is the Birch Memorial Hall, 53 ft. long by 40 ft. wide, to be used for assembling the children, for prize distributions and other meetings.

Behind the front portion of the building is a large covered playground for boys, this space being under two stories of class rooms; and, as the beams supporting the latter extend from side to side of the building without intermediate support, the playground is remarkably free from obstructions in the form of columns.

The first floor behind the Memorial Hall contains five class rooms, each with accommodation for forty scholars, reached by fireproof staircases from the front entrance and communicating by means of a continuous balcony and similar staircase with the old school.

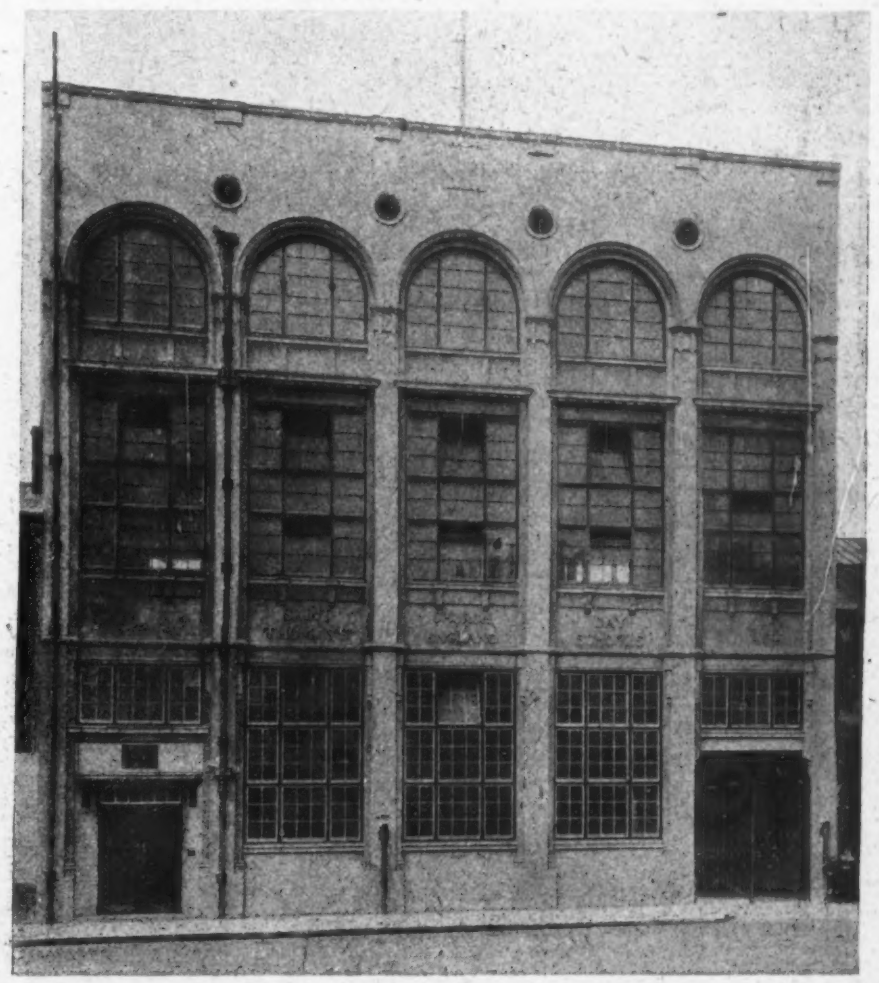
On the second floor are a teachers' room, cloak and other rooms, a covered playground for girls, and five class rooms corresponding in dimensions and arrangement with those on the floor below.

The windows of the ten class rooms, protected by the balconies, have opening casements fixed on top and bottom centre pivots so that the effect of open air class rooms can be obtained.

The roof over the class rooms constitutes the second playground for girls, and is provided with access stairways at each end and protected by parapet walls 7 ft. high.

Measuring 144 ft. long by 54 ft. wide by 53 ft. high, the new building may be thus briefly described, from the structural standpoint: The skeleton consists of wall and interior columns by which all loads are received and transmitted to the ground; wall lintels and systems of floor and roof beams, the former supporting the exterior curtain walls and the latter taking the floor and roof loads—the skeleton being incorporated with the curtain walls and the floor and roof panels, so that the whole forms a monolithic structure of enormous strength despite the slenderness of the various structural elements. The necessary interior partitions forming the rooms, hall, stores, stair enclosures, lift well, and other accommodation, are also monolithic with the skeleton, and the same remark applies to the staircases.

The columns are provided with extended bases for suitable distribution of the loading, and their cross sections at ground level range from 11 in. to 14 in. square, according to the load to be carried—the transverse dimensions being reduced appropriately at successive stories. The beam spans are arranged with a special view to simplicity and economy of construction, a point sufficiently demonstrated by the fact that a thickness of 3 in. was found sufficient for the floor panels to enable them to carry with an ample factor of safety superimposed loading up to 112 lb. per square foot. At the same time, the spans of the beams are of length sufficient to carry the floor above the



St. Thomas's Schools, Birmingham: Elevation to Granville Street.
MESSRS. HARRISON & COX, ARCHITECTS.

MESSRS. ARTHUR HARRISON, F.R.I.B.A., AND G. B. COX, ARCHITECTS.

Memorial Hall without any interior supports, and to leave the covered playground beneath the class rooms quite free from obstruction.

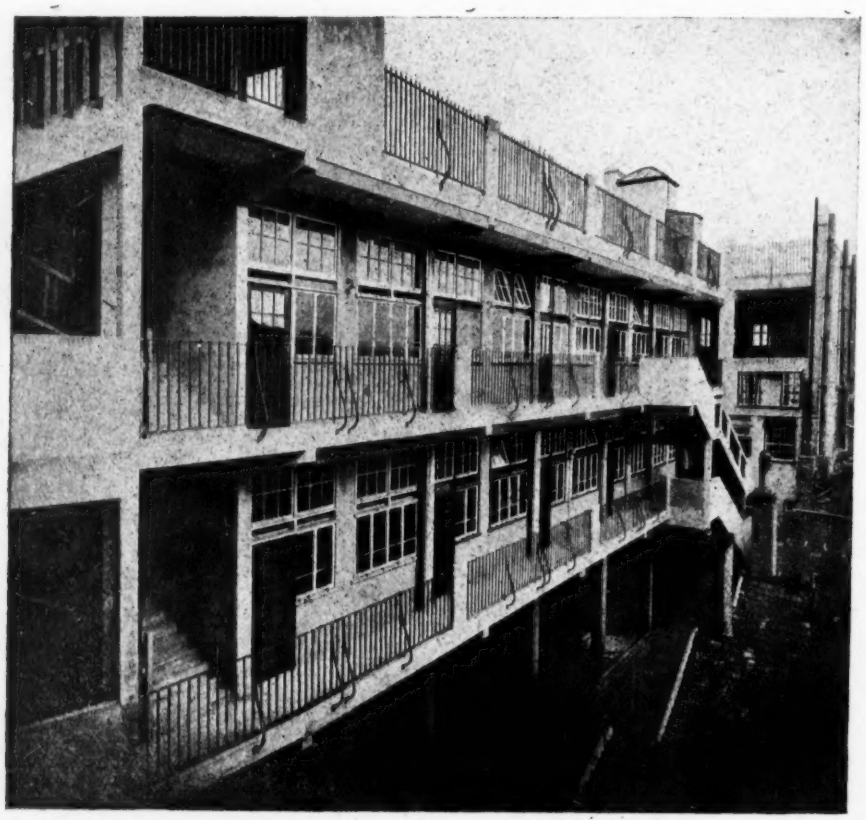
One conspicuous benefit derived from the adoption of a ferro-concrete building is represented by the space gained by reason of the slenderness of the enclosing walls, which are required to act merely as weather screens, since all loads are carried by the general framework. Hence, at St. Thomas's Schools, the exterior walls are only 6 in. thick, as compared with the massive brickwork, from 14 in. to 24 in. thick, that would have been required for self-supporting walls of ordinary construction.

The ferro-concrete work was designed and executed in accordance with Mouchel-Hennebique standard practice. The building has been equipped and appointed on the most modern principles. The Cambridge system of heating and ventilation has been adopted, a method which is new to Birmingham, and has proved entirely satisfactory. It provides for the admission of cold fresh air, regulated by means of inlet hoppers at a height of 8 ft. above floor level—the reason for this arrangement being that it is found to be more invigorating to breathe cold air than air that has previously been warmed. Draughts are avoided and the low-pressure hot-water heating scheme is calculated so as to counterbalance the effect of the cold air inlets. The heating apparatus is installed in the basement shown in one of the drawings reproduced.

The total cost of the building and equipment was £11,500, and it was erected under the direction of the architects, Messrs. Harrison & Cox, by Mr. Thomas Johnson, licensed Mouchel-Hennebique contractor. Messrs. L. G. Mouchel & Partners, Ltd., of Westminster, were responsible for the design of the ferro-concrete work; and Messrs. Henry Lea & Son acted as consulting engineers in connection with the design and installation of the heating and ventilating apparatus, the electric lighting systems and the electric passenger lift.

New Surveyor, Ongar.

Mr. H. Phillips, of Mere, Wiltshire, has been appointed by the Ongar R.D.C. Surveyor and Sanitary Inspector for the district, in succession to Mr. W. N. Jarvis, who has accepted another appointment.



St. Thomas's Schools, Birmingham: Side elevation, showing balconies.
MESSRS. HARRISON & COX, ARCHITECTS.

LAW REPORTS.

KING'S BENCH DIVISION.
(Before MR. JUSTICE BAILHACHE.)

Building By-laws.

Alterations at Repton School.
Governors of Repton School v. Repton Rural District Council.

THIS case, which was heard by the learned Judge on November 7, raised the question whether one of the Local Government Board's model by-laws was valid and workable.

The facts of the case were these:—

The Governors of Repton School, in 1916, proposed to make alterations in one of the school boarding houses, which included an addition to the house of a projection three stories high, with a room on each floor. The work was commenced in August, without the deposit of any plans with the defendants, as the local authority, but on the latter demanding that the deposit should be made, the requisition was complied with, and the plans accordingly deposited on September 28, 1916; however, the defendants resolved that the plans should not be approved, as the alterations did not comply with by-law 12 of the defendants' by-laws as to the provision of open space in the rear of new buildings.

This by-law reads as follows:—

(1) "Every person who shall erect a new domestic building shall provide in the rear of such building an open space exclusively belonging to such building, and of an aggregate extent of not less than 150 ft., and free from any erection thereon above the level of the ground, except a water closet, earth closet or privy, and an ash pit."

(2) "He shall cause such open space to extend laterally throughout the entire width of such building, and he shall cause the distance across such open space from every part of such building to the boundary of any lands or premises immediately opposite or adjoining the site of such building to be not less in any case than 15 ft."

By-law 1 defined "domestic building" as meaning a dwelling-house or an office building, or other out-building appurtenant to a dwelling-house, whether attached thereto or not.

The plans deposited by the plaintiffs were in all other respects in accordance with the defendants' by-laws.

The plaintiffs' contention was that it was impossible to provide an open space in the rear of a new building which consisted of an addition to the front of an existing building, and that by-law 12 was unreasonable and *ultra vires*.

The plaintiffs proceeded with the work, and on December 29 last the defendants served them with a notice calling upon them to show cause why the addition should not be pulled down and removed, and if the notice was not complied with, threatening to pull it down.

Accordingly the plaintiffs commenced the present action for an injunction to restrain the defendants from pulling down, removing, or otherwise interfering with the addition to the house.

Mr. Hudson, K.C., and Mr. Inman appeared for the plaintiffs; and Mr. Talbot, K.C., and the Hon. M. M. Macnaughton, for the defendants.

At the conclusion of the arguments, Mr. Justice Bailhache, in giving judgment, said that when one had to consider whether a by-law of a local authority was good, one had to approach it with a desire to support it, if possible. A public body was by law bound to enforce its by-laws when they had to do with public health.

In the present case there was no doubt that the addition proposed to be made must now be considered to be a new building. It might, perhaps, not have been a new building before 1907, as before then it would probably have been an addition to an old building. But section 23 (*d*) of the Public Health Acts Amendment Act, 1907, provided that "the making of any addition to an existing building by raising any part of the roof, by altering a wall, or making any projection from the building, but so far as regards the addition only, ... shall be deemed to be the erection of a new building."

It was, therefore, clear that the proposed addition to the master's house was a new building, and indeed much less than this addition would be a new building, such as altering a wall or making a projection from a building. The by-laws in question were made long before 1907. Mr. Hudson had argued that, though they were perfectly valid when made, the effect of the Act of 1907 was to make by-law 12 unreasonable, and therefore void. He (his lordship) was not sure that he could adopt that view. He was not satisfied that, apart from the Act of 1907, the additions to the master's house did not come within the by-law as being a domestic building. If so, it was a new domestic building within by-law 12, and, if that was so, according to Mr. Hudson's argument, by-law 12 was unreasonable when it was made, and did not merely become unreasonable after the Act of 1907 was passed. His lordship was inclined to think that this building was a new domestic building, and he had, therefore, to consider whether the by-law was unreasonable when it was made. He would take the case of a house surrounded by a park of 30 acres, and suppose that the owner wished to increase the size of his dining-room in the front of the house by making it 12 ft. wider than it was before, and proposed to make the alteration by throwing out a projection from the front of the house. When the alteration was done, the projection would be a new building, which would not have the requisite air space in the rear as required by the by-law. If he were to hold the by-law to be a good one, the result would be to prevent the owner of a house from doing such a thing as that. He could see no reason for such a by-law and he must hold it to be unreasonable, as preventing an owner of property from doing what he ought to be able to do. That was the conclusion at which he had arrived, although he had done so with reluctance. He thought that since the passing of section 23 of the Act of 1907 the by-law had become unworkable, and must, therefore, be revised. There would, therefore, be judgment for the plaintiffs to restrain the defendants from pulling down the addition to the house.

Judgment was entered accordingly for the plaintiffs, with costs.

THE BUILDING TRADE.

SCIENCE USEFUL FOR THE BRICK AND TILE LAYER.

II.—THE NATURE AND QUALITY OF BRICK CLAYS.

IN the preceding article we discussed the general nature and composition of clays, and it is now necessary to consider the changes which take place in burning, during which process some important alterations in composition may occur, having no little influence on the subsequent life of the finished material. All clays are not brick clays, and the question first arises as to what characters differentiate clays of various kinds. Ruling out clays which contain an undue preponderance of undesirable minerals previously referred to, the suitability of a clay depends chiefly upon its fusibility and content of iron. Iron, as we have seen, is the chief factor in determining colour, and upon colour the value of the material from the kiln largely depends. Fusibility requires a rather longer discussion, and this depends both on fineness of grain and on composition. The smaller the particles of any material the more readily do they tend to melt when heated, and what is much more important, the more readily does any chemical action between them take place. Heat always tends to produce such action, which intimately affects the properties of the bodies concerned in it. There are certain things which may occur in clays which directly promote melting, because they themselves become liquid at—for a brick kiln—low temperatures, the most important being potash and soda compounds produced from the decomposition of felspars. As, however, such compounds are easily dissolved in water, they should not be present in undue quantity in any well-washed clay. On the other hand, melting may result from the formation of a fusible compound by the combination of two ingredients which separately are quite infusible. Thus lime and sand are each infusible in any kiln, but when thoroughly mixed and strongly heated in certain proportions, form a fusible silicate of lime. Certain iron compounds behave like lime in this respect and such bodies are called "fluxes."

Now, though complete fusion or melting must, of course, be avoided, the clay must be heated sufficiently to frit the ingredients together, otherwise the ware would be too fragile to handle, and this "fritting" means that the clay has really reached the beginning of the melting stage or what is called "incipient fusion," and in many cases, as in Staffordshire blue bricks for example, has gone further and become vitrified. The art of the clay burner is thus the reaching of this fritting temperature in the kiln, while not exceeding it, which might result in such softening as would destroy the shape of the moulded material, which would be as disastrous as complete melting. From this it will readily be seen that if the kiln operator is asked to fire a clay of unsuitable composition, which melts too easily, his fear of spoiling the ware will be apt to result in his drawing the kiln before firing is really complete, that is, in the production of slack baked material, which means material which will rapidly break up under the influence of atmospheric or subterranean influences, particularly water. Given a clay which is not subject to the above difficulties, there still remain plenty of points to be considered in connection with successful firing, and the rate of heating and the admission of air to the furnace are matters which may produce a marked effect in remedying a poor or spoiling a good material. Too rapid heating is likely to produce cracks, owing to the same cause as too rapid drying, for the dried clay still contains often some ten per cent. of combined water, which is eventually given off as steam, but other less obvious defects may result. Thus, if an easily vitrified clay, which contains much vegetable matter, is heated so rapidly that the exterior becomes vitrified before this is burnt out, tarry products may be sealed inside, and in the case of bricks, staining of wall decorations might easily result from the use of a half brick in such a wall, exposed to weather or moisture from other sources, which would admit of such matters gradually oozing through to the interior. Dark-coloured cores in bricks must not, however, be taken as necessarily indicating carbonaceous impurities. Generally such colouration is due to a special form of iron oxide formed under conditions in which free air cannot obtain access.

As an example of the effect of improper air supply in the kiln, the objectionable and well-known defect called "salting" may be mentioned. This is chiefly due to the presence of sulphate of lime, which may be present in the clay to begin with, but may also be actually produced in the kiln. All coal contains sulphur, usually in combination with iron, and when this is burnt an oxide of sulphur results, which is a gas possessing the pungent smell characteristic of burning sulphur. Now suppose the kiln to be nearly closed so that it contains a stagnant atmosphere. Aided by the steam evolved, this sulphur gas will combine with the lime in the clay and form sulphate of lime, which will remain in the finished ware, whereas, with a free draught, both the steam and sulphur gas would have passed harmlessly up the chimney. Salting may also be due to the presence of potash and soda, above referred to as powerful fluxes. If these bodies are present in moderate quantities, they may be actually beneficial with proper firing, when they will be converted into silicates by combination with the sand present, and will act as a powerful aid in fritting the whole mass together. If, on the other hand, the material is insufficiently fired salting will be apt to result.

In the case of an ordinary brick or tile, the foregoing considerations sufficiently indicate the genesis of good or bad material; but when another firing is required for the purpose of adding a special surface to the ware, some further regard to the properties of the clay is necessary. Thus good glazes involve the use of a clay of high melting point—a "refractory" clay—the reason being that these glazes only melt, and thus "run" to form an even surface on the ware, at very high temperatures, and if applied to an inferior clay the intensity of firing would soften and distort the material. This is why glazed bricks are made of refractory clays of the fireclay type, which will withstand the highest furnace temperatures. It is quite possible to produce glazes which can be applied to ordinary bricks by the introduction of lead or borax into the "slip" (as the finely powdered material, mixed with water for application to the clay, is called), but such glazes are poor, easily break, and are by no means insoluble or able to withstand corrosive influences; hence the claims for the superiority of "leadless glazes."

Our attention has so far been chiefly directed to defects depending upon composition, but other defects may arise through mechanical treatment, of which the chief is that due to what is called lamination. Even finely divided substances like clay consist of particles which are longer in one direction than another, and when much mica is present the thin scales in which this occurs exercise a marked effect in aiding lamination, which is produced by pressure. This process of layer-forming can be induced even in materials like candle wax, and is due to great pressure obliging the particles to twist round so as to present their thinnest dimension to the pressure direction, and thus as it were give themselves as much room or avoid the compressive action as much as possible. Slate and coal give familiar examples of lamination produced by earth pressure on a large scale. In thick materials like bricks this may not be of much importance, but in tiles it may be very detrimental. No material in a friable condition is free from air, and when compressed this air tends to become confined in elongated bubbles between the planes of lamination, which is, of course, a source of weakness, and should a crack develop, it is most likely to do so along such planes. Once open to the weather, moisture will quickly find an entrance, and should this freeze, little by little this plane of weakness will be opened, and, it may be only after many years, shelling, and perhaps the complete breaking up of the tiles, may result. Such reflections show the importance of care in the manufacture of pressed ware like tiles for exposed situations.

The strength of brickwork in the mass is so much less than that of a single brick, area for area, and depends so largely on workmanship and the efficiency of mortar joints, that compression tests on bricks are not a very valuable guide to the ordinary lay user. The porosity of bricks and tiles again, though important, can hardly be tested satisfactorily without special appliances, though, since poor material absorbs much water, this test is of direct value. The mere plunging of a brick into a bucket of water for an hour or two tells nothing, because it takes a long time to expel or absorb the air which is always entangled in the material. A fair comparative test might perhaps be made by weighing different bricks and leaving each for an equal time—several hours—in boiling water and then re-weighing after removing any surface water, the comparison being made on the basis of increase of weight per pound of material. Anyone who has access to an ordinary microscope can make comparisons as to lamination in tiles by having thin sections cut parallel to the thin edges of the tile and observing the appearance of layers which will then be presented in section side by side. This section cutting is not an expensive matter and is undertaken by firms who deal in microscopes and similar optical apparatus or who sell specimens of minerals. In such sections elongated holes will probably represent spaces which have been occupied by entangled air.

Some direct test for the detection of "slack-baked" ware would be very useful. Burnt is distinguishable from unburnt clay by the entire loss of plasticness in the former, and scientists might endeavour to evolve some simple test on these lines. It can at once be said that any burnt clay which, when subsequently finely powdered and mixed with a little water, showed any tendency to hold together when kneaded was insufficiently fired, but some means for the removal of most of the well-burnt material would probably be necessary before it could be said that a burnt clay which did not show such tendency in the hands of the layman was necessarily satisfactory.

Sulphates of lime, potash, and soda, which give rise to "salting," are all—though to different extents—soluble in water. A comparative test for their presence could be made by finely powdering an equal amount of different brick samples and placing each in a medicine bottle nearly filled with rain water. The bottles should be shaken at intervals and after a few hours be left until the sediment has entirely settled. On adding to each bottle a little solution of sugar of lead dissolved in water, the depth of the white cloudiness produced in the clear liquid will be a rough measure of the amount of sulphate present.

Free lime in pieces of discernible size has been referred to as one of the greatest dangers in bricks and tiles, but every white speck or lump must not be regarded as being this objectionable substance. Silica, in the form of quartz or flint, is very common in clays, and when burnt becomes white and opaque, with a passing resemblance to lime. Though undesirable, as indicating badly cleaned clay if present in pieces of any size, this will not cause disintegration by expansion on contact with moisture. The distinction may be readily made between these two minerals by detaching a small piece of the suspected substance and placing it on a fragment of red litmus paper—a porous paper stained with a vegetable colour, which can be obtained from any chemist. On adding a drop of water and allowing the lump to remain in contact with the paper for a minute or two the latter will change colour from red to blue round the lump if this is lime, but no alteration will occur in the case of silica.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur :—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	11	11	11	11	11	10½	10	8	8	8
Accrington	11½	11½	11	9½	9	10	9½	7	7	7
Altrincham	11	1/1	1/–	1/–	9	1/1	1/–	9	9	9
Ashton-under-Lyne	1/1	1/1	1/0½	1/–	1/–	1/–	1/–	8½	9	9½
Barnsley	10½	11½	1/½	10½	9	1/–	9½	8½	8½	8½
Barrow-in-Furness	1/0¾	1/0½	1/1	1/0½	1/0½	1,0½	1/–	9	9½	9½
Barry	1/–	1/–	1/–	1/–	—	1/–	11	9	9	9
Bath	9	9	9	8½	8½	9	8	6½	6½	6½
Bedford	11	11	11	11	11	11	9	9	9	9½
Birkenhead	1/–	1/–	1/1	1/1	1/–	1/–	11	9	9	9
Birmingham	1 0½§	1/0½§	1/0½§	1/0½§	1/0½§	1/0½§	11§	9½§	9½§	9½§
Bishop Auckland	11	11	11	11	1/–	11	10	8	8	8½
Blackburn	11½	1/0½	1/–	11	11½	1/–	10½	8	8½	8½
Blackpool	1/–	11	11	9½	8½	9½	10½	6	6	6
Bolton	1/1	1/1	1/1	11½	11½	1/–	1/0	7½	7½	9
Bournemouth	11	11	11	11	11	11	10½	8½	8½	8½
Bradford	1/0½	1/0½	1/–	1/–	1/0½	10†	10½†	10	10	10
Bridgwater	8½	8½	8½	8½	8½	8	7½	6	6	6
Brighton	10½	10½	10½	10½	10½	10½	9	8	8	8
Bristol	1/0½	1/0½	1/0½	1/0½	—	1/0½	11½	9½	9½	9½
Burnley	11½	11½	11½	10½	9	10½	10½	7	7½	7½
Burton-on-Trent	11	11	11	11	11	11	10½	8½	8½	8½
Bury	1/–	1/–	1/0½	11	11	1/0½	11½	8	8½	8½
Cambridge	11	10½	10½	10½	10½	11	9	7½	7½	7½
Cardiff	1/–	1/–	1/–	1/–	1/–	1/–	11	9	9	9
Chatham	10	10	10	10	10	10	8½	7	7	7
Chelmsford	8	7½	8½	9	—	7½	6½	5	5	6½
Cheltenham	9¾	9¾	9¾	9¾	—	9¾	9½	6½*	6½*	6½
Chester	10½	11	11	11	11	11	10	6½	7½	7½
Chesterfield	1/–	1/–	11	11	10	11	9	8–8½	8–8½	8–8½
Colchester	8	8½	8½	9	8	9	6	5½	5½	5½
Coventry	1/1	1/1	1/1	1/1	1/1	1/1	1/–	10½	10½	11
Crewe	9	9½	9½	10½	10	9½	10	7	7	7½
Darlington	11½	11½	11½	11½	10	9½	9	8½	8½	8½
Derby	1/–	1/–	1/–	1/–	1/–	11½	10½	9	9	9½
Doncaster	9½	10½	10½	9½	9½	9	8	6½	6½	7½
Dudley	9½	11	11	10	10	9½	8½	8	8	8½
Durham	10½	10½	10½	10½	10½	9½	9	7½	7½	7½
East Glam. and Mon. Valleys	10	10	10	10	—	—	9	7	7	7
Exeter	10	10	10	10	10	9½	9	8	8	8
Folkestone	8½	9	9	9½	8½	9	8	7	7	7
Gloucester	10½	11	11	10½	10½	11	10	8½	8½	8½
Grantham	9½	10	9½	9½	10	8½	8	8	7½	8
Grays	—	1/–	1/–	—	—	1/–	10½	—	10	10
Grimsby	9	10	10½	10½	10	10	10	8	8	8
Great Yarmouth	10	10	10	10	10	10	8½	7	7	7
Halifax	1/–	1/–	11½	9	9	11	10	9½	9½	9½
Harrogate	10½	9½	11	9	8	1/–	9½	7½	7½	7½
Hartlepools	1/0½	1/1	1/1	1/1	1/–	10½	9	10	10	10½
Hastings	10	10	10	10	10	10	8½	7	7	7
Hereford	10	10	10	10	10	10	9	7½	7½	7½
Huddersfield	1/–	11	1/–	11½	11½	1/–	11	9½	9½	9½
Hull	11½	11½	11½	11½	11½	1/–	9	9½	9½	9½
Ipswich	10½	10½	10½	11	10½	11	9	8	8	8
Lancaster	10½	10½	11	10	9½	10	9	6	6½	7½
Leamington Spa	10¾	10¾	10¾	10¾	10¾	10¾	9¾	7¾	7¾	7¾
Leeds	1/1½	1/1½	1/1	11½	11½	1/2	10	10½	10½	10½
Leicester	1/0½	1/0½	1/0½	1/0½	1/1	1/0½	11	10	10	10½
Lincoln	10¾	10¾	10¾	10¾	10¾	10¾	10	8	8	8
Liverpool	1/1½	1/1½	1/1½	1/1	1/1	1/1	1/–	9½	9½	9½
Llanelly	1/–	1/–	1/–	1/–	1/–	1/3	11	9	9	9
London	1/1½¶	1/1½¶	1/1½¶	1/1½¶	—¶	1/2¶	11¶	10¶	10¶	10¶
Loughborough	10	10	10½	10	10	10	9	8½	8½	9½
Luton	10¾	10¾	10¾	11½	10¾	11	9½	8	8¼	9
Maidstone	10	10	10	10	10	10	9	7	7	7
Manchester	1/1	1/1	1/1	1/1	11	1/2	1/–	9	9	9½
Mansfield	11	11	10½	11	11	10½	11	8	8	8
Merthyr Tydfil	11	11	11	11	11	11	10	8½	8½	8½
Middlesbrough	1/0½	1/1	1/1	1/1	1/–	10½	9	10	10	10½
Newcastle-on-Tyne	1/1½	1/1½	1/1½	1/1½	1/–	10½	11	10½	10½	10½
Newport, Mon.	11½	11½	11½	11½	11½	1/0½	10½	8½	8½	8½
Northampton	11	11	11	11	11	11	10	8½	8½	8½
Norwich	10½	10½	10½	10½	10½	10½	9½	8	8	8
Nottingham	1/1	1/1	1/1	1/1	1/0½	1/1½	11½	10½	10½	11
Oldham	1/1	1/–	1/1	1/–	11	11½¶	1/–	8½	8½	9
Oxford	11	10½	10½	10½	10½	10½	9½	8	8	8
Plymouth	10*	10*	11*	10*	10*	10*	8½*	8½	8½	8½
Pontypridd	11	11	11	11	11	11	10	8	8	8
Portsmouth	11½	11½	11½	11½	11½	10½	9½	9	9	9
Preston	10½	1/–	11½	1/–	11	1/–	11½	8½	9	8½
Reading	10½	10½	10½	11	10½	10½	9	7½*	7½*	7½*
Rochdale	1/–	1/–	1/0½	11½	10½	1/0½	1/–	9	9	9½
Rochester	10	10	10	10	10	10	8½	7	7	7
Rugby	11	11	11	11½	1/–	11	10	8	8	9
St. Albans	10	10	10	10	10	10	9	8	8	8½
St. Helen's	1/–	1/–	1/–	1/–	1/–	11	10½	7	7½	8
Scarborough	9½	9½	9	9½	9½	9½	8‡	7½	7½	7½
Sheffield	1/1½	1/1½	1/1½	1/1	1/1	1/1	10	10½	10½	10½
Shrewsbury	8½	9½	9½	9½	—	8½	7	6½	6½	6½
Southampton	11½	11½	11½	11½	11½	11½	10½	8½	8½	8½
Southend-on-Sea	9	9	9	9	Piecework	9	7	6	6	6
Southport	11½	11	11½	11	11	11	11	7	7½	7½
South Shields	1/1½	1/1½	1/1½	1/1½	1/–	10½*	11	10½	10½	10½
Stockport	1/1	1/0½	1/0½	11½	10½	1/–	11½	8½	9	9
Stockton-on-Tees	1/0½	1/1	1/1	1/1	1/–	10½	9	10	10	10½
Stoke-on-Trent	11½	11½	11½	11½	—	10½	10½	8½	8½	8½
Stroud	9¢	9½	9½	9½	9½	9½*	9	7½	7½	7½
Sunderland	1/1	1/1½	1/1	1/1	1/–	9½	11	10	10	10
Swansea	1/–	1/–	1/–	1/–	1/–	1/2	11½	9	9	9
Taunton	9	9	9	9	9	9	8	6½	6½	6½
Torquay	10	10	10	10	10	10	10	8	8	8
Wakefield	10	11	10½	9½	8½	10½	10	9	9	9
Walsall	11½	11	11	11	11	11	9½	8½	8½	8½
Warrington	11	1/0½	1/–	1/0½	1/0½	1/–	11	7	7½	7½
West Bromwich	11	11	10½	10½	—	10	9	8	8	8
Wigan	11½	1/–	11½	11	10½	11½	10¾	9	9	9
Windsor	10	10	10	10	10	10	8¾	7	7	7
Wolverhampton	1/–	1/–	1/–	11	11	1/–	10½	9	9	9
Worcester	9½	10	10	10	10	10½	8½	7½	7½	7½
York	9¾	9¾	9¾	10¾	10	10½	8½	8½	8½	8½

The Masons' rate given is for bankers; fixers usually ½d. per hour extra.
* War bonus of 2s. per week granted. † War bonus of 3s. per week granted. ‡ War bonus of 3s. 6d. per week granted.
¶ War bonus of 6s. per week granted. § 1d. per hour extra for men engaged on munition work.
¶ 1¾d. per hour extra for men engaged on munition work.

Competitions, Contracts, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number. Competitio s,—; Tenders, —; Public Appointments, xviii; Auction Sales, xx, Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

COMPETITIONS.

JAN. 13, 1918.—**London.**—DESIGNS are invited by the R.I.B.A. for four specified types of cottages suitable for the industrial classes. Premiums of £100 and £50 for the best designs of each of three types, and £50 and £30 for the fourth.

BUILDING AND PAINTING.

NOVEMBER 17.—**Bristol.**—PAINTING, &c.—The Guardians invite tenders for (*a*) painting, &c., the Lock Ward at Stapleton Institution; and (*b*) taking down, re-fixing, &c., iron railings at Headquarters Homes, Fishponds. Specifications, &c., of Mr. J. J. Simpson, Clerk to the Guardians, St. Peter's Hospital, Bristol.

NOVEMBER 17.—**Oxford.**—EXTENSIONS.—For certain extensions of cottage at the Sewage Pumping Station, Littlemore. Plans, &c., at the Offices of the City Engineer, Town Hall, Oxford.

FURNITURE, MATERIALS, etc.

NOVEMBER 20.—**London.**—CHAIRS, &c.—Supply to the Commissioners of His Majesty's Works, &c., of folding garden chairs (1,000) and wash-hand stands (2,000). Forms of the Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, London S.W. 1.

NOVEMBER 27.—**Barry.**—MATERIALS.—Supply to the Barry Railway Company of builder's materials, (including iron, oils, steel, timber, varnishes, &c.), for six months from January 1, 1918. Specifications, &c., from Mr. E. T. Lawrence, Secretary, Company's Offices, Barry Docks, Glam.

NOVEMBER 29.—**Nottingham.**—MATERIALS.—Supply to the Works and Ways Committee of builder's materials, from January 1 to December 31, 1918. Forms of Mr. Arthur Brown, M.Inst.C.E., City Engineer, Guildhall, Nottingham.

ENGINEERING, IRON AND STEEL.

FEBRUARY 18.—**Johannesburg.** — REFRIGERATING PLANT.—The Municipal Council of Johannesburg invites tenders for the supply and erection of extensions to refrigerating plant and fitting up of refrigerating chambers at the Municipal abattoir, Newtown, Johannesburg, South Africa. Drawings and documents at the Council's London Agents, Messrs. E. W. Carling & Co., St. Dunstan's-buildings, St. Dunstan's-hill, London, E.C.

ROAD, SANITARY, AND WATER WORKS.

NOVEMBER 16-30.—**Antrim.**—HORSEWORK, BROKEN STONES, &c.—For supplying horsework, broken stones, and screenings, &c., on the roads which are to be maintained by direct labour in the rural districts of Aghalee, Antrim, Ballymena, Ballymoney, Belfast, Larne, and Lisburn. Specifications, &c., at the County Surveyor's Office, County Courthouse, Belfast; also obtained for the rural districts of Antrim, Ballymena, Ballymoney, and Larne at the Offices of the respective Clerks of the Rural District Councils. Tenders for Aghalee rural district to be lodged on November 16, and those for Belfast and Lisburn on November 23, at County Surveyor's Office, County Courthouse, Belfast. Tenders for Ballymena and Ballymoney rural districts to be lodged on November 29, and those for Antrim and Larne on November 30, at the Office of the Clerk of the Rural District Council concerned.

NOVEMBER 20. — **West Hartlepool.** — ROAD MATERIALS.—Supply to the Corporation during the year ending December 31, 1918, of Yorkshire and concrete kerbstone, flags, scoriæ, and whinstone, channel blocks and paving setts, hand, machine and unbroken whinstone, pitch, tar and lime. Specifications, &c., of Mr. Nelson F. Denniss, M.Inst.C.E., Borough Engineer and Surveyor, Borough Engineer's Department, Municipal Buildings.

NOVEMBER 28.—**Cannock.**—SEWERS.—The U.D.C. invite tenders for the provision, laying and jointing of about 156 lin. yds. of 6 in. and 106 lin. yds. of 9 in. diameter stoneware pipe sewers and other incidental works. Drawings, &c., of Mr. Robert Blanchard, Engineer and Surveyor, Council Offices, Cannock, Staffs. Deposit £2.

Auction Sales.

★NOVEMBER 22.—**Croydon.**—Mr. Berners Price will sell on the premises, 13, Wandle-road, Croydon, the plant and stock-in-trade of a contractor, builder and decorator, about 600 lots. On view day prior to sale. Catalogues of the liquidator, Alan C. Lucas, Esq., 60, Watling-street, E.C. 4; Messrs. Finch, Turner & Taylor, 84, Cannon-street, E.C.; and the Auctioneer, 4, Railway-buildings, Croydon (Tel. 1518).

Public Appointments.

★NOV. 22.—**Liverpool.**—A head master is required by the Education Committee of the City of Liverpool. Salary commencing at the rate of £300 per annum. Applications to the Director of Education, Education Offices, Sir Thomas-street, Liverpool.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

BRIGHTON.—In the opinion of the Corporation Health Committee, 200 new working-class houses will be needed in Brighton after the war, and if certain developments take place probably 300 more will be needed.

CHESTERFIELD.—Chesterfield Corporation have discussed a report on the housing question presented to them by Alderman W. Rhodes, who has been appointed as a member of the National Housing and Town Planning Council. The Council have decided, subject to the approval of the L.G.B., to enter into a provisional contract for the purchase of 63¾ acres of land at Boythorpe for the purpose of a housing scheme, and for sites for works, &c.

DEPTFORD.—Plan passed by B.C.: Reconstruction of drainage system at 14-24, Snead-street, for Mr. A. L. Etheridge.

GELLIGAER.—Gelligaer U.C. has decided to recommend the L.G.B. to permit the erection of 3,030 houses throughout the area after the war.

HEANOR.—The U.D.C. has instructed the Surveyor to prepare a scheme for the erection of 250 houses after the war to meet the urgent demands of the district.

ISLINGTON.—Islington Guardians have agreed that improvements to certain parts of the laundry should be carried out at a total cost of £700, under the supervision of Mr. Harrison, architect.

KINGSTEIGNTON.—The P.C. has approved of the action of the Housing Committee, which reported the need of fifty more houses in the village.

LLANDAFF.—The Llandaff and Dinas Powis R.D.C. consider that for after-the-war needs the following new houses will be required:—Lavernock 20, Pentyrch 28, Radyr 30, St. George's 6, Llandishen 150, Penmark 20, Porthkerry 20, Whitchurch 100, and St. Brides-super-Ely 6.

MANCHESTER.—The Manchester City Council has authorised the Sanitary Committee to go on with their proposal to purchase the Gorton Mount Estate, at an estimated cost of £15,000, with a view to building thereon in due time about seven hundred working-class houses.

OSSETT.—Plans passed by T.C.:—Sanitary accommodation for three cottages, Dewsbury-road, for Mr. J. H. Glover; porch, Station-road, for Mr. F. Giggal.

SHEFFIELD.—Plans passed by T.C.:—Additions and alterations, Effingham-road, for Messrs. Thomas Firth & Sons, Ltd.; store shed addition, Edmund-road, for the Sheffield & Ecclesall Co-operative Society, Ltd.; drainage alterations, Savile-street East, for Messrs. John Brown & Co., Ltd.; additions and alterations, Attercliffe-road and Savile-street, for Messrs. Thomas W. Ward, Ltd.; works addition, Carlisle-street East, for Messrs. Henry Bessemer & Co., Ltd.; coal stores, Cherry-street, for Messrs. Henry Tomlinson, Ltd.; additions and alterations, Neepsend-lane, for Messrs. J. H. Andrew & Co., Ltd.; shed addition, Hollis Croft, for Messrs. J. Cooper & Sons; sub-station, Little London-road, for Messrs. Tyzack, Sons & Turner; workshop and mess-room additions, Hollis Croft, for Messrs. W. Fearnehough, Ltd.; additions and alterations, Queen's-road, for Messrs. Hodkin & Jones, Ltd.; lavatory, &c., Effingham-road, for Messrs. Wragg & Biggin; alterations, Egerton-street, for Messrs. Carr, Wild & Co., Ltd.; alterations and additions, Bromhall-street, for Mr. H. Bryars, alterations, Wicker, for Messrs. S. Osborn & Co., Ltd.; additions, Tinsley Park-road, for the Tinsley Park Colliery Co., Ltd.; additions, Westbury-street, for Messrs. Langton & Sons; roof over brick kiln, Harding-street, for Messrs. Coupe Bros.; alterations, Savile-street, for Messrs. G. Turton, Platts & Co., Ltd.; office, &c., Sheffield-road, for Messrs. Edgar Allen & Co., Ltd.; compo mill-house, Vulcan-road, for Messrs. Edgar Allen & Co., Ltd.; additions, Bessemer-road, for Messrs. A. Lee & Sons, Ltd.; stores additions, Stanley-lane, for Messrs. H. Freckingham & Sons, Ltd.; scrap stores additions, Bacon-lane, for Messrs. Kent-Smith, Ltd.; stores, dining-room and engineers' shop additions, Liverpool-road, for Messrs. Hadfield's, Ltd.; oil cooler-house addition, Darnall-road, for Messrs. Kayser, Ellison & Co., Ltd.; hammer shop, Worthing-road, for Messrs. J. Holding & Co., Ltd.; ingot store, Sheffield-road, for Messrs. W. T. Flather, Ltd.; stores additions, Cornish-street, for Messrs. J. Dixon & Sons; workshops, Water-lane, for Messrs. J. Longbottom & Sons; latrines additions, Vulcan-road, for Messrs. E. Allen & Co., Ltd.; canteen, Sheffield-road, for Messrs. Wm. Cooke & Co., Ltd.

ST. MARYLEBONE.—Plan passed by B.C.:—Drainage, 25 to 37, Earl-street, Mr. E. C. Trepplin, for Viscount Portman.

WALSALL.—Plans passed by T.C.:—Offices and pump-house, Green-lane, Leamore, for the Talbot Steed Tube Co., Ltd.; machine shop, Woodall-street, Bloxwich, for J. & J. Wiggin, Ltd.; bakehouse, High-street, Bloxwich, for Mr. W. Chambers; lorry shed, Gas Works, Pleck, for the Gas Committee of the Corporation; wagon shed, New Mills, for Boys & Son.

WALTON (ESSEX).—The Council has approved the plan of a hut for the Y.M.C.A.

WANDSWORTH.—Works approved by the B.C.:—Construction of drain at Blunt's Flower Market, Mitcham-road, Tooting, for Mrs. J. C. Fowls; addition to drains at St. Mary's Convent, Tooting Bec-gardens, Streatham, for Messrs. G. Hill & Sons, Ltd.; erection of addition to, and alteration of, drain at garage, "Knowstone," Clarence-road, Clapham South, for Messrs. H. Somerford & Son; erection of sanitary accommodation at the Metropolitan Water Board's Depot, The Causeway, Fairfield, for Messrs. G. Parker & Sons; erection of addition to washing-up shed, and of water-closet, in yard at rear of 81-89, Bedford-hill, Balham, for Mr. F. Hann; erection of urinal and drinking fountain, and construction of additions at the temporary reformatory for boys, 13-17, Cedars-road, Clapham North, by Messrs. Triggs & Co.; erection of two water-closets and sink at rear of 1, Lammermoor-road, Balham, Mr. S. Taylor; re-drainage of 626, Garratt-lane, Springfield; erection of additional water-closets and lavatories at McMurray's paper mills, Garratt-lane, Fairfield, for Mr. A. E. Symes; erection of buildings in Portsmouth-road, Putney, for H.M. Office of Works.

WARRENBY.—The North Riding C.C. has decided to ask the L.G.B. to consent to a loan for the immediate purchase of a site and the erection of a new school at Warrenby.

WHITEHAVEN.—The R.D.C. has resolved that the Surveyor be instructed to prepare plans with estimate, for the erection of 100 houses in the parish of Moresby.—The T. C. is recommended to consider a proposal for authority to prepare a town planning scheme which shall apply to certain parts of the borough and the Whitehaven rural district, within the inner edge of the boundary line.

WORKSOP.—Plans passed:—Three cottages and offices in Eastgate for Messrs. Godley & Goulding; wooden cycle shed in Newcastle-avenue, for the Royal Theatre Co., Ltd. (as a temporary building only).

* See also our list of Competitions, Contracts, &c., on p. 292.

THE LONDON COUNTY COUNCIL.

THE fortnightly meeting of the London County Council was held on Tuesday, in the County Hall, Spring-gardens, S.W., the Marquis of Crewe, Chairman, presiding.

Loan.—Sanction was given to the borrowing by the Woolwich Borough Council of £4,484 for electricity plant.

Westminster Improvement.—In a report submitted by the Improvements Committee it was stated that Mr. F. E. Williams has offered a rent of £600 a year for a lease of 99 years of a plot of land having an area of about 10,800 square feet and frontages to Tufton-street, Dean Trench-street, and Romney-street, of 176, 66 and 53 feet respectively. It is proposed to erect private houses on the site. The offer is made subject to the conditions that the peppercorn period shall be for two years from the date when the present building restrictions are removed by the Ministry of Munitions, and that a deposit of one-half of the ultimate ground rent shall be accepted.

Buildings, &c., over Sewers.—Licences have been granted by the Main Drainage Committee for the erection of buildings at Lupus-street, Pimlico, (King's Scholars' Pond sewer), and for the construction of subway under Broad-street, Ratcliff (Ratcliff Highway sewer).

Builders' Labourers and Iron Bending connected with Ferro-Concrete Work.

The following addendum to Rule 3 has been agreed between the London Master Builders' Association and the London Branches of the United Builders' Labourers' Union, United Order of General Labourers and Navvies, Builders' Labourers and General Labourers' Union:—"That qualified benders and fixers on reinforced concrete be paid at an additional rate of 1d. per hour on labourers' rates, and that the benders and fixers should only receive that additional rate on the production of a card from any employer of this Association certifying they have been employed for three months or more by him as benders or fixers. Benders and fixers to provide the following tools: Pliers, chisels, hammers and hack saw frames." The addendum to be operative from October 4 inst.

HOUSING AFTER THE WAR.

As briefly mentioned in our last issue, Mr. W. Hayes Fisher, President of the Local Government Board, delivered an address at the Reform Club, Manchester, on Tuesday last week, on "Housing at the Close of the War." He said that he hoped that before the session was ended Parliament might have a chance of discussing at least the main outlines of the policy which the Government might think fit to adopt. Closing and demolition orders could not now be made, because the building of new houses had come practically to a standstill since 1915. The Government ought to make, so far as it could make, in conjunction with the local authorities, every preparation for the times that were coming after the war. The housing question was really at the root of all social reform. In Manchester, for instance, 50,000 persons were living more than two in a single room. They heard people talk of the possibilities of revolution and of industrial unrest, but they would have neither if the working classes could rest by night in decently comfortable homes after a good day's work with a good day's wage. The State had never taken upon itself the obligation of building houses for the people, neither had municipalities nor local authorities thought it their duty to undertake that work, not at any rate until lately, and to a very small extent. They would not be able to coax the private builder back into the field again just yet. One of the difficulties would be the raising of money, but the cost of materials would prove to be the greatest difficulty. He was going to be perfectly bold, and say that much the best plan was that they should not subsidise housing at all by the State out of the rates, but that they should so order their commercial and industrial life that the majority of the citizens would receive a sufficient wage, out of which they could pay an economic rent for a decent dwelling. Within a year after the close of the war he did not think it would be possible to build more than 300,000 houses. Was the State a good builder? They had examples of State building at Woolwich and other places. He would not like to see it tried on a grand scale, because he did not think the State was a good builder. He issued a circular to local authorities and, so far, had been pleased with the result. One-third of these bodies had not yet replied, but they might take it that local authorities were prepared to build 200,000 houses. He hoped they would be prepared to build 300,000 and he thought they would when they came to be bargained with. He sympathised with their difficulties.

A Six-Hour Day.

At a meeting of the Fight for Right Movement in the Æolian Hall, Lord Leverhulme advocated a six-hour day in factories—while claiming his personal liberty to work for any period up to 16 hours a day. They could not, he said, put a man to mind a machine from 7.30 until 5 or 5.30 without lowering the human being, preventing a broad outlook on life, and the full enjoyment of life. A six-hour day meant an increase in production, and with each increase in wages there had been an increased demand which swallowed up the increased production. They could employ all the men returning from the trenches, because by machinery they could produce more and pay a higher wage, thus increasing the spending power and finding a market for the goods. But there must be a better environment and a better outlook, better education, and more leisure, for it was from leisure that real culture sprang. One manufacturer found that with a 53-hours week, his women employees were losing 14 hours. He reduced the hours to 41, and the women lost only one hour, doing 44½ per cent. more work in the 40 hours than they had done in the 39. With a six-hours day the first shift would work from 7 until 1.30 and then the other would go on, each being allowed half-an-hour's mealtime; and the following week the shifts would be reversed. Evening education classes were not reasonable either for the brain or the body.

"ALL BRITISH."

Casson's White possesses all the merits of the best quality white lead, and yet is NON-POISONOUS.

¶ CASSON'S WHITE is superior to white lead because it is better in colour, texture and covering power; suitable for all decorations, both inside and outside; unaffected by sulphurous fumes; it produces cleaner and softer tints; it is the finest possible undercoating for enamels.

¶ WITH ALL THESE ADVANTAGES IT COVERS FAR MORE SURFACE THAN WHITE LEAD.

¶ This, together with the low price charged for Casson's White, makes it considerably less than half the price of white lead paint.

CASSONS WHITE

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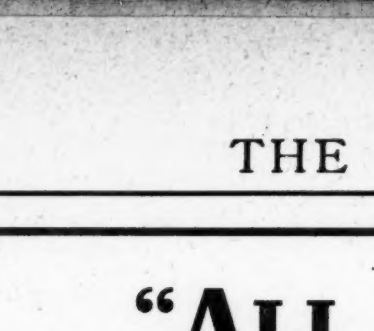

THREE SEAS BRAND

PRICE (one quality only—the best)

45/- per cwt.

(Carriage Paid.)

Or Ready Mixed, 12/6 per gallon.

CASSON'S WHITE IS STOCKED BY THE LEADING BUILDERS' MERCHANTS, INCLUDING THE UNDERMENTIONED AGENTS:

COTTERELL BROS., LTD., 11, Clare Street .. BRISTOL
E. NEALE & SONS, Ascupart Street SOUTHAMPTON
VALPIED BROS, South Esplanade .. GUERNSEY
J. J. TRAVIS & CO., LTD., Greaves Street OLDHAM
C. A. BIRCH & CO., Trundle Street .. HULL
SHAW & MARSDEN, Crown Works .. ST. HELENS
CHAS. E. WILLIAMS, LTD., 281, Broad St, BIRMINGHAM
W. ROBINSON, LTD., 7 & 9, Victoria St., NOTTINGHAM
C. L. CASSON, LTD., Parr Street .. LIVERPOOL
C. R. FEARNLEY & SON, LTD., Well Croft Works, SHIPLEY.
W. ROBINSON, LTD., Church Gate .. LEICESTER
GIBBS & DANDY, 34, George Street .. LUTON
T. KNAPMAN, 153, Fore Street .. .. EXETER
BOILEAU & BOYD, LTD., 46, Mary Street . DUBLIN
J. & W. HENDERSON, LTD., 122, George St., EDINBURGH
PRESTON PAINT & VARNISH CO., Market St., PRESTON
T. CROSSLING & CO., LTD, 81, Clayton St., NEWCASTLE
REED, MILLICAN & CO., Market Street, NEWCASTLE-ON-TYNE
STOCK, TIDMAN & CO., Queen Street .. CARDIFF
CROSS, SON CO., Treville Street .. PLYMOUTH

Agents for LONDON, KENT, SURREY, SUSSEX, MIDDLESEX, BERKS, HERTS and BUCKS.

WM. N. FROY & SONS, Ltd., Brunswick Works, HAMMERSMITH, W.

SOUTH AFRICA.

CAPETOWN.

PURCELL, YALLOP & EVERETT, LTD., P.O. Box No. 146, Amsterdam Street.

JOHANNESBURG.

W. R. BOUSTRED, LTD., P.O. Box No. 1525, 132, Fox Street.

List of Testimonials on Application

If you have any difficulty in getting delivery of Casson's White write direct to

The Casson Compositions Co., Ltd.

HURLINGHAM PAINT WORKS,

Crown Works, Brentford.

FULHAM, LONDON, S.W.

Colham Mill, West Drayton.

Telegrams and Cables—"ACASCOMPOS LONDON."

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several revisions have been made —Ed.]

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1,000 Alongside, in River Thames.	£ s. d.
Best Stocks	2 10 0
Picked Stocks for Facings	3 5 0

Per 1000, Delivered at Railway Depot, London.	£ s. d.		£ s. d.
Mettons	2 3 0	Best Blue Pressed Staffordshire	6 5 0
Best Fareham Red	4 0 0	Do. Bullnose	6 10 0
Best Red Pressed Ruabon Facing	6 0 0	Best Stourbridge Fire bricks	9 5 0

GLAZED BRICKS—			
Best White, Ivory, and Salt Glazed Stretchers	14 17 6	D'ble Str'tch'rs	20 7 6
		D'ble Headers	17 7 6
		One Side and two Ends	21 7 6
Headers	14 7 6	Two Sides and one End	22 17 6
Quoins, Bullnose and 4½in. Flats	18 7 6	Splays and Squints	19 17 6

Glazed bricks priced at so much each, 25 per cent. advance on list.

Second Quality, £1 per 1,000 less than best.

	s. d.	
Thames Ballast	8 9	per yard, delivered.
Pit Sand	11 0	
Thames Sand	12 0	„ „ „
Best Washed Sand	12 0	„ „ „
¾ in. Shingle for Ferro-Concrete	11 6	„ „ „

Per ton, delivered.

	£ s. d.		£ s. d.
Best Portland Cement	2 15 0	..	2 18 0

Do. £2 11s. 0d. alongside in 80-ton lots.
Ferrocrete 2s. 6d. per ton extra on above.
Best Ground Blue Lias Lime 1 7 6 at rly. depot.
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 3d. each and credited at 2s. each if returned in good condition within three months.
Grey Stone Lime ..... 47s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 37s. 6d. per ton at rly. dpt.

STONE.

BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	s. d. 1 7
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	1 8½
Do. do. delivered on road waggons at Nine Elms Depot	1 9½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park, G.W.R., South Lambeth, G.W.R., or Nine Elms, or L. & S.W.R., per ft. cube	2 5½
Do. do. delivered on road waggons at Pimlico Wharf or Nine Elms Depot, per ft. cube..	2 6½
White basebed, 2d. per ft. cube extra.	

RANDOM BLOCKS—Per Ft. Cube, delivered at Rly. Dpot.

	s. d.		s. d.
Ancaster in blocks	2 0	Closeburn Red	
Beer in blocks	1 7½	Freestone	2 2
Grinshill in blocks	2 4	Red & White Mansfield random block	2 9
Darley Dale in blocks	2 5	Yellow Magnesian Limestone do. do	3 3

YORK STONE—*Robin Hood Quality.*

Delivered at any Goods Station London.	s. d.
Scappled random blocks ..... Per Ft. Cube	3 11
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	3 0
6 in. rubbed two sides, ditto ..... „	3 4
3 in. sawn two sides slabs (random sizes) „	1 3½
2 in. to 2½ in. sawn one side slabs (random sizes) ..... „	0 10
1½ in. to 2 in. ditto, ditto ..... „	0 8½

HARD YORK—

Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	3 6
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	2 8
6 in. rubbed two sides ditto ..... „	2 4
3 in. sawn two sides slabs (random sizes) „	1 3
2 in. self-faced random flags ..... „	0 5½

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles or hand-made sand-faced tiles from either Broseley or Staffordshire district	3 0 0
Ornamental ditto	3 2 6
Hip and valley tiles (per dozen)	0 6 0

SLATES.

Per 1,000 of 1,200 f.o.r. London.

		£ s. d.
Best Blue Bangor Slates,	20 by 10	13 5 0
„ „	16 by 8	6 12 6
First quality „	20 by 10	12 15 0
„ „	16 by 8	6 10 0
Best Blue Portmadoc	20 by 10	13 5 0
„ „	16 by 8	6 12 6
First quality „	20 by 10	12 12 6
„ „	16 by 8	6 7 6

WOOD.

BEST BUILDING REDWOOD. Imported sizes.

Softwood stocks controlled by the Director of Materials, consequently prices must be withdrawn

Deals: 4 in. by 12 in., 4 in. by 11 in., 3 in. by 11 in., 4 in. by 9 in., and 2 in. by 11 in. .....
3 in. by 9 in., 2½ in. by 9 in., and 2 in. by 9 in. .....

WOOD (*Continued*).

BEST BUILDING REDWOOD.

Softwood stocks controlled by the Director of Materials, consequently prices must be withdrawn.

Battens: 2 in., 2½ in., and 3 in. by 8 in. .....
2 in., 2½ in., and 3 in. by 7 in. .....
2 in., 2½ in., and 3 in. by 6 in. .....
Scantlings: 2 in. by 3 in., 2 in. by 3½ in., 2 in. by 4 in., 2 in. by 4½ in. ...
3 in. by 4 in., and 3 in. by 4½ in. .....
Boards: 1 in., 1¼ in., and 1½ in. by 6 in. and 7 in. ¾ in. .....
Seconds .....
Sawn pitch pine logs (about 35 cu. ft. average .....
Do. 6 in. to 10 in. ..

Best Pitch Pine Deals ....
Under 2 in. thick .....

JOINERS' WOOD

White Sea First Quality Red: 4 in. by 11 in...
3 in. by 11 in., and 2 in. by 11 in. .....
4 in. by 9 in. .....
3 in. by 9 in., and 2½ in. by 9 in. .....
3 in. by 11 in. boards ..
7 in. and 8 in. battens ..
7 in. and 8 in. boards ...
Archangel White Deals—
Best 3 in. by 9 in. and 10 in. and 11 in. .....
Seconds, do. .....
U.S. Battens .....
Prepared Floorings and Matchings. Seconds Swedish Red and equal—
1¼ in. by 6½ in. planed and shot .....
1¼ in. by 6½ in. planed and matched .....
1 in. by 6½ in. planed and shot .....
1 in. by 6½ in. planed and matched .....
¾ in. by 6½ in. planed, matched, and beaded, or V jointed .....
1 in. by 6½ in. do. .....
Columbian or Oregon Pine, best quality .....
Yellow Pine—First regular sizes .....
Oddments .....
Seconds, regular sizes ..
Oddments .....
Kauri Pine—Planks per ft. cube.....

Dry Wainscot Oak, per ft. super, as inch	0 1 6	..	0 2 0		
¼ in. do. do.	0 1 3	..	0 1 6		
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 2 0	..	0 3 0		
Cuba. Mahogany	0 2 6	..	0 3 6		
Dry Walnut, American, per ft. super, as inch	0 2 0	..	0 3 0		
French, "Italian," Walnut	0 3 0	..	0 5 0		
Teak, per load (Rangoon or Moulmein)	45 0 0		60 0 0		
Do. do. (Java)					
American Whitewood planks, per ft. cube	0 18 0	..	1 1 0		
Glue, per cwt.	5 10 0	..	5 15 0		

METALS.

JOISTS, GIRDERS, &c.

Prices controlled by the Ministry of Munitions.

Rolled Steel Joists, ordinary sections, basis price .....
Plain Compound Girders, ordinary sections .....
Plain Compound Stanchions
Angles, Tees, and Channels, ordinary sections .....
Flitch Plates .....
Cast Iron Columns and Stanchions, plain ordinary patterns .....

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £4 net value delivered direct from works. 5 per cent. less carriage forward if sent from London stocks.)

	Tubes.		Fittings.
Gas	42½	....	47½
Water	37½	....	45
Steam	32½	....	42½
Galvanised gas	25	....	40
„ water	16	....	37½
„ steam	10	....	35

L.C.C. SOIL PIPE—

	Pipes Coated. s. d.		London Prices. Bends. s. d.		Branches. s. d.
2 in. per yd..	2 10	....	2 3	each	2 8
2½ in. „ ..	3 3	....	2 6	„	3 4
3 in. „ ..	4 0	....	2 8	„	4 0
3½ in. „ ..	4 5	....	3 4	„	4 7
4 in. „ ..	4 10	....	3 9	„	5 3

RAIN-WATER PIPES, &c.

	Pipe. s. d.		London Prices. Bends. s. d.		Branches. s. d.
2 in. per yd..	2 1	....	1 3	each	1 8
2½ in. „ ..	2 3	....	1 6	„	2 1
3 in. „ ..	2 7	....	1 9	„	2 8
3½ in. „ ..	3 2	....	2 2	„	3 2
4 in. „ ..	3 4	....	2 7	„	3 10

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 5s. 5d. .. 5 in., 6s. 9d .. 6 in., 7s. 11d.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	16 10 0	to	17 0 0
Staffordshire Crown Bars — good merchant quality	16 10 0	..	17 10 0
Staffordshire "Marked Bars"	17 10 0	..	18 0 0
Mild Steel Bars	19 0 0	..	19 10 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Steel Bars, Ferro-Concrete quality, £19 basis price.			
Hoop Iron, basis price	20 10 0	..	21 0 0
„ Galvanised	33 0 0	..	—
(* And upwards, according to size and gauge.)			
Sheet Iron Black—			
Ordinary sizes to 20 g.	22 10 0	..	23 0 0
„ „ 24 g.	23 10 0	..	24 0 0
„ „ 26 g.	24 10 0	..	25 0 0
Sheet Iron, Galvanised flat, ordinary quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	34 0 0	..	—
Ordinary sizes to 22 g. and 24 g.	34 0 0	..	34 10 0
Ordinary sizes to 26 g.	36 0 0	..	36 10 0
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	35 10 0	..	—
„ „ 22 g. and 24 g.	36 0 0	..	—
Ordinary sizes to 26 g.	39 0 0	..	—
Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.	33 0 0	..	—
Ordinary sizes, 22 g. and 24 g.	33 10 0	..	—
Ordinary sizes, 26 g.	32 10 0	..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	24 10 0	..	—
Best Soft Steel Sheets, 20 g. and 24 g.	24 15 0	..	—
Best Soft Steel Sheets, 26 g.	26 10 0	..	—
Cut Nails, 3 in. to 6 in.	28 0 0	..	29 0 0
(Under 3 in., usual trade extras)			

LEAD, &c.

	Delivered in London. £ s. d.		
LEAD—Sheet, English, 4 lb. and up	38 10 0	..	—
Pipe in coils	39 0 0	..	—
Soil Pipe	42 0 0	..	—
Compo pipe	42 0 0	..	—

NOTE—Country delivery, 20s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra. Orders for over 1 cwt. Sheet Lead or Pipe, or 28 lbs. Solder should be accompanied by a certificate or licence, which can be obtained from the Director of Materials [A.N.2 (E)], Hotel Victoria, S.W. Smaller quantities than the above can be obtained by making a written declaration to the Manufacturer or Merchant that the metal is wanted for urgent renewals or repairs, and giving the name of the job for which it is required.

COPPER—					
Strong Sheet	per lb.	0	1	6	.. —
Thin „	„	0	1	8	.. —
Copper nails	„	0	1	6	.. —
Copper wire	„	0	1	8	.. —
BRASS—					
Strong Sheet	„	0	1	6	.. —
Thin „	„	0	1	8	.. —
TIN—English Ingots	„	0	2	8	.. —
SOLDER—Plumbers'	„	0	1	2	.. —
Tinmen's	„	0	1	8	.. —
Blowpipe	„	0	1	10	.. —

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft		Per Ft.
15 oz. fourths	6d.	26 oz. thirds	9d.
„ thirds	6½d.	32 „ fourths	9d.
21 „ fourths	7½d.	„ thirds	10d.
„ thirds	7½d.	Fluted Sheet, 15 oz.	7½d.
26 „ fourths	8d.	„ 21 „	8½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
⅛ Rolled plate	4d.
⅜ Rough rolled and rough cast plate	4½d.
½ Rough rolled and rough cast plate	4½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6d.
Ditto, tinted	7d.
Rolled Sheet	5d.
White Rolled Cathedral	5d.
Tinted do.	5½d.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil in pipes per gallon		0 5 6
„ „ „ in barrels	„	0 5 7
„ „ „ in drums	„	0 5 10
Boiled „ „ in barrels	„	0 5 10
„ „ „ in drums	„	0 6 1
Turpentine in barrels	„	0 7 6
„ in drums	„	0 7 9
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		53 10 0
GENUINE WHITE LEAD PAINT— "Blackfriars," "Nine Elms," "Park," and other best brands (in 14 lb. tins) not less than 5 cwt. lots.. per ton delivered		69 0 0
Red Lead, Dry (packages extra) .. per ton		42 0 0

Orders for White and Red Lead and any Paint containing Lead must be accompanied by a certificate or licence, which can be obtained from the Director of Materials [A.N. 2 (E.)], Hotel Victoria, S.W.

Best Linseed Oil Putty	per cwt.	0 15 6
Filocol	per cwt.	0 13 6

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak	0 8 0
Pale Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 6
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Pale French Oil	1 1 0
Eggshell Flatting	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 18 0
French and Brush Polish	0 12 0

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H. Shephard & Co., Hertford.... 223 15 6

LONDON.—For, supply to the Westminster City Council of wood blocks. Accepted tenders :—
Espley & Co., Ltd., Evesham :
10,000 3 in. × 6 in. × 4 in. Scotch fir, at £9 10s. per m. £95 0 0
Kind, J. B., Ltd., Burton-on-Trent : 50,000 8 in. oak and beech (assorted sizes) .. about 726 0 0
Groom, R., Sons & Co., Ltd., Wellington, Salop :
25,000 4 in. × 9 in. × 3 in. beech, at £15 15s. per m. 393 15 0
25,000 4½ in. × 9 in. × 3 in. oak, at £17 15s. per m. 443 15 0

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Grisdale & Barton, North Woolwich per lb.	3	6

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*Wm. Clarke, Church-street, Wicklow £98 16

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Liverpool: 36, Dale St.
Newcastle-on-Tyne: 2, St. Nicholas Buildings
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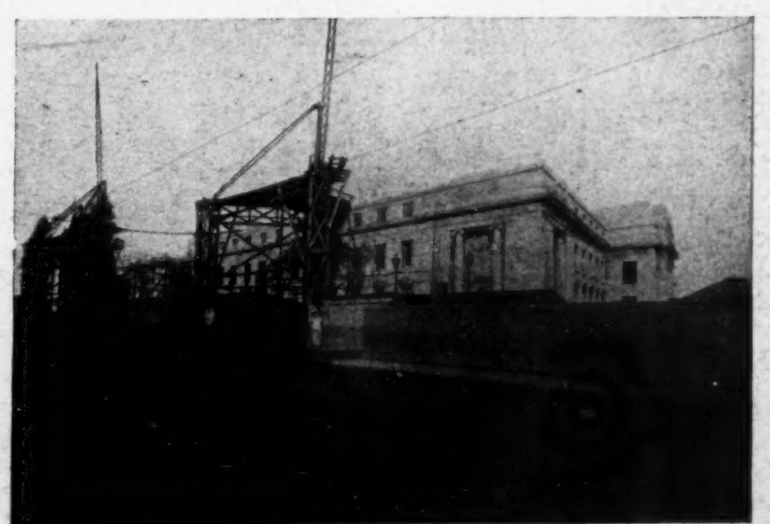

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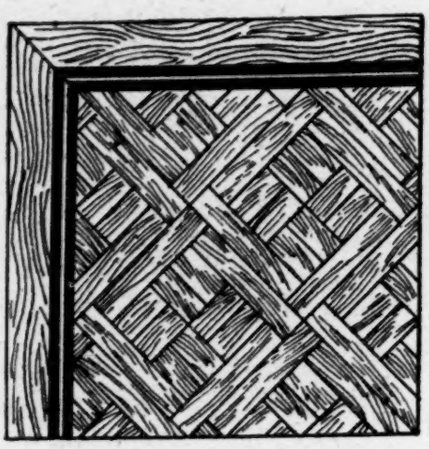

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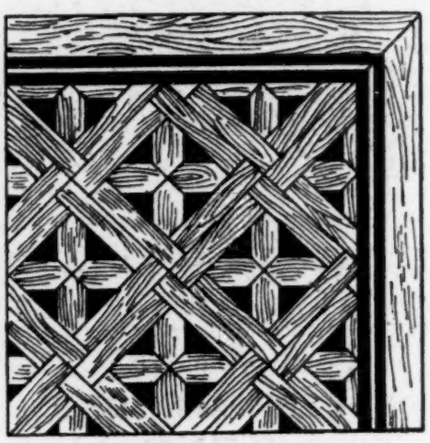

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